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HEALTH ECONOMICS RESEARCH, INC.

411 Waverley Oaks Road, Suite 330
Waltham, MA 02452
(781) 788-8100
(781) 788-8101 - FAX

MEASURING PERFORMANCE IN MANAGED CARE PLANS

Final Report

Submitted by:

Debra A. Dayhoff, Ph.D.
Margo L. Rosenbach, Ph.D.
Edith G. Walsh, Ph.D.

With:

Health Economics Research, Inc.

And:

Mary B. Barton, M.D., M.P.P
Robert H. Fletcher, M.D., M.Sc.
Stephen B. Soumerai, Sc.D.

With:

Harvard Pilgrim Health Care

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Executive Summary

The purpose of this study is to develop a set of Medicare performance indicators that can be applied to managed care plans and to test whether these indicators can be implemented using elements available in a health maintenance organization data system. This research fits into a broader objective of developing a performance monitoring framework for managed care that could be used by the Health Care Financing Administration (HCFA), which would parallel their ongoing efforts to monitor care in the fee-for-service sector. The emphasis would be on monitoring across different types of Medicare beneficiaries, rather than monitoring the performance of any single plan. For example, HCFA would be interested in monitoring whether the care of patients with chronic conditions, such as those with diabetes, was comparable in fee-for-service and managed care. Similarly, the most vulnerable beneficiaries, such as the oldest-old, could be monitored to see whether those in managed care plans suffered relative to those in fee-for-service. This project serves as a pilot study for determining what measures can be constructed and meaningfully interpreted with "good" managed care data.

A monitoring system may rely on several types of data: for example encounter/claims data, survey data, and administrative data. Doctor Colby, and Gold (1996) review alternative

sources of information for measuring performance in Medicare managed care. Our focus is for encounter/claims data and what can be done with them.

The study consists of two major components. The first is the development of a series of Medicare performance indicators. Although in most cases, the indicators apply to both the managed care and fee-for-service sectors, their clinical algorithms may vary. In addition, some indicators apply only to managed care, given the unique features of the managed care encounter data. The second component of the study is to operationalize these indicators using Medicare fee-for-service data and data for Medicare beneficiaries enrolled in managed care, to determine whether the indicators can in fact be implemented and are meaningful.

The managed care data for this analysis come from Harvard Pilgrim Health Care (HPHC), the largest health maintenance organization (HMO) in New England.[1] During our study period, HPHC contained a staff model division and an IPA-model division with very different data systems and incentive structures for physicians. Thus, we test indicator feasibility and results across the two divisions of the managed care organization as well as between managed care and fee-for-service.

Defining Access and Quality in Managed Care

Despite its importance to the national health care debate, access to care has proven difficult to define. Most analyses of access have relied on the framework established by

[1] The group was formerly known as Harvard Community Health Plan. The name was changed following a merger with Pilgrim Health Care in 1995.

Andersen and Aday (1978) which was developed in a context of fee-for-service medicine. In a fee-for-service system, the incentives are to provide more care. The major access concern is whether people can get into the system, or whether geographic or financial barriers prevent them from receiving care. As a result, access indicators have traditionally focused on entry into the health care system, such as number of providers available, whether patients have insurance, and the proportion of eligibles with at least one visit to a provider.

In contrast to "access," the concept of "quality" has traditionally been used to evaluate a patient's experience *within* the health care system. The distinction between access and quality is blurred, however, where financing and delivery systems are merged (Docteur, Colby and Gold, 1996).

Thus, the discussion of access in managed care may be more about appropriateness of care given the incentive structure is to limit overutilization of services. Unlike the "more is better" attitude of fee-for-service, managed care providers act as gatekeepers to high cost specialty care. Thus, in managed care, access to care is not simply a matter of whether providers are geographically convenient, or out-of-pocket costs are affordable, but also, whether the gatekeeper will authorize a particular service.

Given the difficulty of distinguishing between access measures and quality measures, we have decided to de-emphasize use of these terms. Instead, it may be more useful to think of the study as developing *performance measures* that can utilize claims data to determine whether patients receive "timely and appropriate care."

Data and Methods

This study uses data from three separate data systems:

- **Fee-for-service** data come from HCFA's Medicare MedPAR, National Claims History, and Enrollment data files. These files contain the universe of claims for Medicare beneficiaries in fee-for-service.

- Data for clinic encounters in the **Health Centers Division (HCD)**, the staff-model division of the HMO, is kept on the Automated Medical Record System (AMRS), one of the earliest electronic patient record systems. Diagnoses, procedures, and tests are represented by COSTAR codes, using a system that was originally developed for the plan. (Thus, encounters are not coded using the ICD-9 or CPT-4 systems.) Information on claims and utilization outside the Centers is stored in a separate system using ICD-9 and CPT-4 codes.

- Records for care in the **Medical Groups Division (MGD)**, the IPA-type division of the HMO, are based on dummy claims submitted to HPHC to document care. These files are less rich in detail than the AMRS database in the HCD but are very much like most other claims databases, using ICD-9 and CPT-4 coding.

Data were used for calendar years 1994 and 1995.

To be included in the fee-for-service sample, beneficiaries were required to meet the following requirements: age 65 and older; having both Part A and B coverage, not enrolled in an HMO, and residing in the HPHC catchment area (which included much of Massachusetts, and southern Vermont and New Hampshire). Beneficiaries in the HPHC sample included those age 65 and older during the study period (January 1994-December 1995). Beneficiaries were required to be continuously enrolled (in fee-for-service or the HMO) for indicator-specific periods.

Comparison of Fee-For-Service and Managed Care Results

We constructed 19 performance indicators, grouped under five headings: primary care, chronic disease care, diagnosis specific care, specialty referral care, and primary care. Table ES-1 summarizes the results for our 19 performance indicators, which are discussed below.

Preventive Care

Given the HMO's incentives to contain costs of future care and the philosophical emphasis on prevention, we expected that performance in the HMO would surpass that of fee-for-service practice. This was clearly the case for the colon cancer screening rate, which was over 50 percent for both divisions of the HMO, while only 36 percent of fee-for-service beneficiaries received any type of screening test during the 24-month study period.[2] Nearly twice as high a proportion (77 percent) of aged women in the HCD received breast cancer screening during the 24-month period compared with women in fee-for-service (40%); performance in the MGD was between these two, with 67 percent of women recieving the test.

We expect that much of the difference resulted from the use of an automated reminder system in the HCD that notifies physicians when a member is due for mammography. In this instance, the managed care "philosophical emphasis" on prevention

[2]Fee-for-service coverage of fecal occult blood tests was limited during our study period, contributing to the low figure

Table ES-1

Age-Adjusted Summary of Performance Indicators

	Fee-For Service	HPHC Health Centers Division	HPHC Medical Groups Division
Preventive Care			
Breast Cancer Screening Rate Percentage of female beneficiaries receiving a mammogram during a 24 month period	40.8% (40.6, 41.0)	77.0% (75.0, 79.0)	64.8% (61.6, 68.0)
Colon Cancer Screening Rate Percentage of beneficiaries with a fecal occult blood test sigmoidoscopy, or colonoscopy during a 24 month period	35.8% (35.6, 36.0)	58.6% (57.5, 60.7)	52.7% (50.5, 54.9)
Chronic Disease Care			
Rates of Secondary Preventive Services for Diabetes Mellitus Percentage of beneficiaries with a diabetes diagnosis with each of the following during a 12 month period:			
Retinal examination	54.8% (54.3, 55.3)	67.5% (64.7, 70.3)	63.9% (59.6, 68.2)
Two or more visits with a primary care provider or endocrinologist	61.2% (60.7, 61.7)	94.6% (92.5, 96.7)	90.7% (90.0, 91.4)
Population-Based Admission Rate for Ambulatory Care Sensitive Conditions Admission rates per 1,000 eligibles during a 12 month period	71.9 (71.1, 72.7)	60.1 (55.7, 64.5)	44.4 (38.4, 50.4)
Rate of Pre-Hospital Care for Ambulatory Care Sensitive Admissions Percentage of beneficiaries with an ACS admission with at least one visit during the 60 days prior to admission	80.3% (79.7, 80.9)	85.8% (81.7, 89.9)	85.3% (79.1, 91.5)
Rate of Post-Hospital Care for Ambulatory Care Sensitive Admissions Percentage of beneficiaries with an ACS admission with at least one visit during the 30 days following discharge	78.4% (77.8, 79.9)	81.8% (77.3, 86.3)	84.6% (78.5, 90.7)
Anti-hypertensive Follow-up Rate Percentage of beneficiaries with at least one follow-up visit within 8 months after receiving a prescription for an anti-hypertensive	—	93.0% (92.1, 93.9)	—

Table ES-1 (continued)

Age-Adjusted Summary of Performance Indicators

	Fee-For Service	HPHC Health Centers Division	HPHC Medical Groups Division
Anti-depressant Follow-up Rate Percentage of beneficiaries with at least one follow-up visit within 8 months after receiving a prescription for an anti-depressant	—	93.2% (91.7, 94.7)	—
Diagnosis-Specific Care			
Rate of Post-Hospital Follow-up for Myocardial Infarction Percentage of beneficiaries hospitalized for MI with at least one cardiology or primary care visit within 60 days of discharge	73.3% (71.7, 74.9)	90.7% (83.8, 97.6)	93.2% (83.8, 100)
Rate of Post-Hospital Follow-up for Depression Percentage of beneficiaries hospitalized for depression with at least one primary care or mental health visit within 14 days of discharge	65.8% (62.7, 68.9)	64.5% (37.3, 92.2)	80.3% (57.6, 100)
Rate of Follow-up for Abnormal Mammogram Percentage of female beneficiaries with an abnormal mammogram who receive repeat mammogram, ultrasound, biopsy or surgery within 15 days	—	46.1% (34.2, 58.0)	—
Specialty Referral Care			
Population-based Rate of Lens Replacement Rate of lens replacements per thousand beneficiaries during a 12 month period	37.9 (37.3, 38.5)	32.5 (29.1, 35.9)	16.6 (12.6, 20.6)
Population-based Rate of Hip and Knee Replacement Rate of total hip and knee replacement per thousand beneficiaries during a 12 month period	6.8 (6.5, 7.1)	5.9 (4.3, 7.5)	7.7 (4.9, 10.5)
Population-based Rate of Coronary Revascularization Rate of coronary bypass and angioplasty per thousand beneficiaries during a 12 month period	8.6 (8.3, 8.9)	7.6 (5.7, 9.5)	4.1 (1.7, 6.5)
Rate of Breast Cancer Oncology Follow-up Percentage of female beneficiaries with at least one oncology or general surgery visit in the 6 months following an initial diagnosis of breast cancer	—	71.0% (63.7, 78.3)	—

Table ES-1 (continued)

Age-Adjusted Summary of Performance Indicators

	Fee-For Service	HPHC Health Centers Division	HPHC Medical Groups Division
Primary Care			
Rate of New Enrollees with a Visit Percentage of new enrollees with at least one visit during the first two months of enrollment	—	73.9% (70.7, 77.1)	48.7% (45.1, 52.3)
Rate of Beneficiaries with a Visit Percentage of beneficiaries with at least one visit with a primary care physician or specialist during a 12 month period	88.4% (88.3, 88.5)	93.9% (91.7, 96.1)	90.9% (88.3, 93.5)
Continuity of Care Index Proportion of visits per patient for primary care that are with the patient's primary care physician	—	71.3% (66.7, 75.9)	—

NOTE: Medicare fee-for-service did not cover routine colon cancer screening during the study period. Our rate may undercount the proportion of beneficiaries receiving the service if they paid out of pocket.

and the financial incentives to provide preventive services have been institutionalized into a reminder system to help insure that services are in fact provided. In the MGD, which has no such automated system, methods of "reminding" physicians that care is due vary across the groups, and consequently the rate of mammography is lower.

Chronic Disease Care

Care for chronic diseases is an area where managed care has the potential to outperform fee-for-service because of the greater ability (and incentives) to coordinate care and manage cases through a primary caregiver. HPHC has been in the process of developing automated reminders for specific conditions (such as diabetes) and guidelines for treatment of common conditions (such as many of the ambulatory care sensitive (ACS) diagnoses). On the other hand, there are concerns that patients with chronic diseases, who may be quite expensive to treat, may be underserved and see their health deteriorate in managed care (Ware, *et al.*, 1996). The extent to which HMO initiatives to coordinate care will actually result in "care management" as opposed to cost reduction through "utilization management" has not been demonstrated.

Our study found that both divisions of the HMO performed quite well in treating chronic conditions. Rates of secondary preventive services for diabetics were higher in the HMO than in fee-for-service, while the admission rates for ambulatory care sensitive conditions were lower (meaning that fewer patients reached the point which required a

hospitalization).[3] Rates of outpatient care pre- and post- ACS admission were quite high (80-85 percent) for both fee-for-service and managed care, indicating that most patients did have contact with the medical system before and after their actual hospitalization. For the HCD (which has computerized data on prescriptions), we also found that rates of follow-up for patients with prescriptions for anti-hypertensive or anti-depressant medications were quite high (over 90 percent).

Diagnosis Specific Care

Our three indicators for diagnosis-specific care highlight the problem inherent in developing this type of indicator. By focusing on a very specific condition (or incident) it is possible to develop an indicator for which there is a consensus on appropriate treatment. However, the narrow focus also implies that sample sizes quickly become an issue.

The conditions we chose (myocardial infarction, hospitalization for depression, abnormal mammogram) are not rare or exotic conditions among the elderly. However, given the number of Medicare beneficiaries enrolled in HPHC, and the resulting small samples and wide confidence intervals, it is difficult to draw any conclusions regarding performance across the three sectors.

[3]Lower rates of hospitalization could result either from more timely outpatient care or from differences in the overall health of the populations.

Specialty Care

Perhaps more than any other area, skeptics of managed care worry about the incentives to limit use of expensive specialty care. Unfortunately, provision of specialty care is a very difficult area to monitor, since there is so little agreement as to when referrals to specialists are needed. We chose three relatively common procedures in the Medicare population--lens replacement, hip and knee replacement, and coronary revascularization--and calculated the population-based rate of each procedure. While differences in procedure rates may in part be attributed to differences in incidence of disease, dramatically high or low rates may be cause for concern. Not surprisingly, we found that the surgical rates were generally higher in fee-for-service than the HMO divisions. However, this may reflect overutilization in fee-for-service, given the incentive structure, as opposed to underutilization in managed care. Alternatively, both rates could be appropriate but reflect differences in casemix. Moreover, given the sample sizes in the HCD and MGD, the number of beneficiaries receiving these surgeries in the managed care setting is relatively small and unstable from year to year.

Primary Care

The proportion of beneficiaries with at least one physician visit during a 12-month period is quite high for all three sectors, ranging from 88 percent in fee-for-service to 94 percent in the HCD. A more striking comparison is found for the percentage of new enrollees with at least one visit during the first two months of enrollment. This rate is much higher for the HCD than the MGD, and the gap narrows, but does not disappear as the time horizon is expanded. The HCD's high rate reflects its aggressive campaign to triage and assess high risk patients. The lower rate for the MGD may reflect movement of patients into the MGD who join HPHC from another HMO or fee-for-service but do not change physicians. These patients would not be assessed as new patients, since they continue to visit the same medical group and physician as before joining HPHC.

Implications for Developing a Monitoring System

This project was intended to serve as a pilot study for determining what measures could be constructed--and meaningfully interpreted--with "good" managed care data. It was designed to help HCFA in the development of a framework for monitoring managed care. This would parallel their ongoing efforts to monitor care in the fee-for-service sector. Hence, we conclude with a discussion of "lessons learned" during the course of the study that addresses the implications for applying a set of performance measures to other health plans or providers.

Constructing the Indicators. Once we had developed the final set of indicators, they were constructed using the different claims/encounter databases for Medicare fee-for-service, the HCD, and the MGD. In this section, we briefly describe some of the difficulties encountered in developing and interpreting the indicators.

Reconciling Differences in Coding Systems. The fee-for-service and MGD data, along with the HCD institutional data, used ICD-9 diagnosis and CPT-4 coding. The HCD ambulatory claims used the COSTAR coding system that was originally developed by Harvard Community Health Plan.

Because of the different coding schemes, we were forced to develop comparable definitions for identifying diagnoses and procedures for all indicators based on outpatient care. In defining the indicators, two questions were considered:

- Is there an identical (or similar) code in each system?
- Are physicians equally likely to use the code (given a procedure was performed or condition was observed) in each system?

For many indicators, developing similar definitions was quite straightforward, as COSTAR coding corresponded quite closely to ICD-9 or CPT-4 coding. For example, the list of codes for colorectal cancer screening tests is fairly extensive, but the definitions of codes correspond closely in ICD-9 and COSTAR coding.

The most difficult definition to develop was for retinal screening for diabetics. The COSTAR system has codes for eye examinations. However, given the payment structure of the HCD, optometrists/ophthalmologists have no incentive to code that a specific test was

performed; rather, they are more likely to code the findings of the test. We found that they often coded a diagnosis that would normally require a retinal exam without coding the exam itself. Thus, rather than selecting a few COSTAR codes that would correspond to the CPT codes for retinal exam, we were forced to rely on a series of diagnostic codes that could only be found if a retinal exam were performed. If a physician failed to code the exam, and found no abnormalities, we may underestimate the numerator for this indicator.

In fee-for-service, physicians may bill for a visit rather than an eye exam, since payment may differ for the two codes. If this happened, we also may undercount in fee-for-service.

A second coding issue is the appearance of "rule out" diagnoses in the data. The HCD data system allows physicians to mark a diagnosis as being a "rule out"--although it is not clear that these are always indicated. The fee-for-service and MGD data have no such marker for "rule out" diagnoses, and it is impossible to determine which are intended as definitive diagnoses and which are coded as "rule outs." For illnesses which are likely to have a high proportion of "rule out" diagnoses in the claims, this difference in coding complicates development of similar samples. For the diabetes indicators, we required that the diagnosis be attached to a physician claim (rather than, say, a laboratory claim) in an attempt to reduce the number of "rule outs." Given the significant number of beneficiaries

in all three data sets with only one diabetes diagnosis, any attempt to identify all patients with the disease is likely to either miss some true cases or include some rule-out diagnoses.[4]

Variations in Data Set Structure. In addition to differences in data coding systems, the structures for the data sets varied across the three settings. For example, all of the data systems we worked with had separate files for inpatient institutional claims. However, the actual claims stored in the hospital file differed across the data systems. Initial attempts to locate mammogram codes for the MGD identified only 2 percent of women with claims for a mammogram during a two-year period, including no claims in 1994. Further investigation revealed that claims for Medicare recipients were not located in the ambulatory claims files, but in hospital claims files. In contrast, in fee-for-service data, mammography claims can be found in the physician/supplier file, the outpatient department file, or both files.

This example highlights one danger of working with unfamiliar data sets. If all data (or virtually all data) are missing, as was the case with mammography in the MGD, it is easy to recognize the problem. If some of the data are missing, as was the case in the fee-for-service physician/supplier file, it can be much more difficult to recognize that the problem exists.

[4] HEDIS attempts to eliminate "rule-out" diagnoses by requiring that the diagnosis appear twice during the calendar year. The disadvantage of this approach is that it may bias estimates of performance indicators upwards, if some patients have only one diagnosis because they are low utilizers of care.

Costs of Processing Data. The cost of processing claims can be high, especially when it is necessary to search through a large database multiple times, for example, to first search an outpatient database to identify all claims with a particular diagnosis, and then search again to pull all claims for beneficiaries with that diagnosis.

For a medical record database, such as HPHC's Automated Medical Record System, the cost can be prohibitive, even on relatively small samples of data. Since the data source is a medical record, rather than a claim, data processing of relatively small samples of data becomes time-consuming and expensive. Thus, in estimating the burden on plans from implementing a monitoring system, the data processing requirements should not assume that all plans have access to claims data and can process data in a similar manner.

Limitations in Sample Sizes. One of our criteria for selecting indicators was that they be related to a high-incidence disease or a high-incidence procedure. Given the limited number of indicators that can be monitored, we did not want to select a rare condition (or procedure) upon which to base a performance measure. Even using relatively common diseases and procedures, our samples were quite small for several indicators in the HCD and the MGD, which had roughly 11,000 and 5,500 aged Medicare members, respectively. Sample size decreases even more for indicators that require a lengthy continuous enrollment period. Even where overall samples were relatively large, we were often limited in the stratifications that could be made.

We developed all indicators and presented rates and confidence intervals regardless of sample size. (Obviously, the likelihood of detecting statistically meaningful differences is much lower for the indicators based on very small samples.) Given the exploratory nature of this project, we felt this was an appropriate approach.

For a set of performance indicators intended as a "report card," an approach that does not rely on audience familiarity with confidence intervals and statistical tests may be more appropriate. For example, HEDIS 3.0 specifies that if a measure applies to fewer than 100 members, the plan should report a 95 percent confidence interval, and that measures based on fewer than 100 members should not be used for comparisons among health plans. Moreover, HEDIS specifies that measures should not be reported when there are fewer than 30 members in the denominator. Our post-depression follow-up measure would not have been reported using this criteria, and samples for the myocardial infarction and abnormal mammogram follow-ups both fell below the 100 member threshold.

Interpreting the Results. Claims-based monitoring systems can tell us what occurred in a patient's medical care, but not why. For example, the results of our data processing indicated that the rate of mammography was much higher in the HCD than in the MGD or fee-for-service. However, the claims cannot give us information on whether the difference resulted from provider willingness to encourage mammography, patient willingness to have the procedure, availability of convenient locations/hours for mammography services, or some other reason. In fact, we believe the difference is largely

attributable to the HCD automatic reminder system, that prompts physicians when a beneficiary is due to receive a mammogram.

The advantage of the claims-based system is that it can, at relatively low cost, flag areas where the system is doing well or poorly. This allows policy-makers to concentrate further effort on areas where improvements are needed. By combining a claims-based system with other approaches to gauging access and quality, such as surveys and chart audits, we can gain a much more complete picture of plan performance.

Conclusion

Generalizability of our Experience. The purpose of this study was to develop a set of Medicare performance indicators that could be applied to managed care plans and to test whether these indicators could be implemented using elements available in an HMO data system. This project was intended to serve as a pilot study for determining what measures can be constructed, and meaningfully interpreted, with "good" managed care data.

We began the study knowing that our HMO data were of higher quality than that found in many managed care organizations. Numerous studies have been published using diagnosis and procedure data from the HCD's Automated Medical Record System (studying conditions as diverse as streptococcal pharyngitis, hypertension, and bipolar disorder). Data from the MGD have not been used for published research to the same extent as data from the HCD. However, the plan has used the data bases for its own internal analysis. Thus,

although we have constructed a set of performance indicators with two types of HMO data, it is not clear whether the data systems of other managed care organizations can support the same types of analysis. Many pressures (including HEDIS) are pushing managed care organizations to improve their data systems. Thus, construction of performance indicators is much more feasible than it would have been even a few years ago.

Next Steps. For this project, we developed a set of 19 performance indicators, several of which were constructed using alternate methodologies (for example, varying the episode length). While we constructed multiple rates in order to test the sensitivity of our results to varying definitions, it would be desirable to determine the preferred definition that would be reported as part of the performance monitoring system.

More importantly, it would be desirable to replicate this study using data from other health plans. Using data from two divisions of HPHC, we have found that our indicators can be constructed, and comparisons among the two divisions and fee-for-service practice show meaningful differences in the performance of the three sectors. We have also found, however, that differences in databases can complicate construction and interpretation of the indicators. Extending the work to include data from other health plans would be the next step towards developing these indicators into a monitoring system for managed care performance.

1 Introduction

1.1 Objectives of the Project

Both the President and Congress have proposed significant changes in Medicare, including fundamentally restructuring the way care is organized and delivered as well as generating substantial reductions in the growth of expenditures. These proposed changes in the health care delivery system are primarily being driven by cost, accompanied by an emphasis on fostering competition, "managing care," creating networks of "preferred" providers, and assigning "gatekeeper" physicians as conduits to services. A common element of many of these initiatives is the realization that Americans will no longer enjoy unquestioned, unfettered access to whatever specific services they desire or that their physicians are motivated to recommend.

These anticipated changes heighten the need for long-term, continuous, monitoring of the care received by Medicare program beneficiaries. The Health Care Financing Administration (HCFA) has a long history of monitoring access to care for Medicare beneficiaries, but most of these efforts have focused on the fee-for-service sector.[1] Given the cost-containment incentives that providers face in managed care programs, and the growing

[1]The historical focus on fee-for-service resulted from the overwhelming majority of beneficiaries belonging to this sector and the availability of claims data for fee-for-service care. For managed care there have always been more extensive up-front requirements (relating to who can be a contractor) and ongoing monitoring through site visits, PROs, etc.

significance of these programs for Medicare beneficiaries, efforts to monitor access must be broadened to include beneficiaries in managed care.

Measuring access to care for managed care enrollees is more difficult than simply taking indicators that have been developed using fee-for-service data and applying them to managed care plans. Little information on services provided to patients has historically been available from most managed care plans, although the situation is changing rapidly. One of the administrative advantages to capitated payment systems is the absence of the need for claims. Services are provided, but no bills are submitted to the payer (e.g., Medicare). While many managed care plans do maintain encounter data for their own internal management and quality assurance purposes, these data vary markedly in their completeness, reliability, and availability to researchers outside the managed care organization. Furthermore, there is currently no standard method of collecting and reporting such encounter data across plans.

The purpose of this study is to develop a set of Medicare performance indicators that can be applied to managed care plans and to test whether these indicators can be implemented using elements available in a health maintenance organization (HMO) data system. This research fits into a broader objective of developing a performance monitoring framework for managed care that could be used by HCFA, which would parallel their ongoing efforts to monitor care in the fee-for-service sector. The emphasis would be on monitoring across different types of Medicare beneficiaries, rather than monitoring the performance of any single plan. This project serves as a pilot study for determining what measures can be constructed and meaningfully interpreted with "good" managed care data.

A monitoring system may rely on several types of data; for example, encounter/claims data, survey data, and administrative data. Docteur, Colby, and Gold (1996) review alternative sources of information for measuring performance in Medicare managed care. Our focus is on encounter/claims data and what can be done with them.

The study consists of two major components. The first is the development of a series of Medicare performance indicators. Although in most cases, the indicators apply to both the managed care and fee-for-service sectors, their clinical algorithms may vary. In addition, some indicators apply only to managed care, given the unique features of the managed care encounter data. The second component of the study is to operationalize these indicators using Medicare fee-for-service data and data for Medicare beneficiaries enrolled in managed care, to determine whether the indicators can in fact be implemented and are meaningful.

The managed care data for this analysis come from Harvard Pilgrim Health Care (HPHC), the largest HMO in New England[2]. During our study period, HPHC contained a staff model division and an IPA-model division with very different data systems and incentive structures for physicians. Thus, we can test indicator feasibility and results across the two divisions of the managed care organization as well as between managed care and fee-for-service. Appendix A contains material describing the structure and systems of the two HMO divisions. This helps to interpret differences in performance between the two divisions, and between the HMO and fee-for-service.

[2] The group was formerly known as Harvard Community Health Plan. The name was changed following a merger with Pilgrim Health Care in 1995.

1.2 Monitoring Performance in Managed Care and Fee-for-Service

Numerous studies give reason to suspect that performance may differ between managed care and fee-for-service settings. Under fee-for-service reimbursement, providers receive additional payment for each billable service provided to the patient. As a result, their financial incentive is to provide more services (and submit more claims) to increase revenue. In contrast, under a managed care risk-contract, the capitated reimbursement is fixed regardless of the services provided. Thus, the financial incentive under the contract is to limit use of expensive resources, particularly if their ability to improve health or reduce future expenses is ambiguous. Moreover, there is no direct incentive in a capitated system to maintain complete claims data for each patient encounter.

What differences between managed care and fee-for-service might we expect given the different incentive structures? First, managed care providers may be more likely than fee-for-service providers to provide preventive care (immunizations) or screening services (mammography, check-ups) that may reduce future costs of treatment by allowing early treatment. Bernstein *et al.* (1991) support this hypothesis, having found that HMOs had higher rates of preventive services even when compared to fee-for-service plans that had no out-of-pocket payments. Riley *et al.* (1994) found that HMO enrollees were diagnosed earlier than fee-for-service enrollees for cancers of the female breast, cervix, colon, and melanomas, although they were diagnosed at a later stage for stomach cancer.

However, the cost-containment incentives of managed care may result in underservice and suboptimal care, particularly for some types of conditions (Spitz, 1979; Rowland and

Lyons, 1987). Managed care providers may be less likely to offer access to expensive technology (MRI or CT), expensive procedures (bypass surgery), or access to specialty care (cataract surgery) (Goldzweig, *et al.* 1997). Vulnerable subgroups -- the oldest old, those with functional impairments, and those in poorer health -- may be particularly affected by incentives to limit resource use (Nelson, *et al.* 1997; Ware *et al.* 1996). Empirical research points to lower per-patient expenditures among recipients of pre-paid care than among comparable patients with fee-for-service insurance (Manning, *et al.* 1984; Greenfield *et al.* 1992; Miller and Luft, 1994).[3]

Given the concerns that managed care may be "underperforming" relative to fee-for-service on some measures, it is important to benchmark managed care performance against that in the fee-for-service sector. Otherwise, managed care performance may be compared against some "ideal" performance that is not being achieved elsewhere. Of course, even when we benchmark we cannot always distinguish underperformance in one sector from over performance in another.

1.3 Defining Access in a Managed Care Environment

Despite its importance to the national health care debate, access to care has proven difficult to define. Most analyses of access have relied on the framework established by Andersen and Aday (1978) which was developed in a context of fee-for-service medicine. In a fee-for-service system, the incentives are to provide more care. The major access

[3]However, Brown *et al.* (1993) found that outcomes are comparable for HMO and fee-for-service patients, suggesting that the lower level of services appears to be due to the elimination of discretionary services.

concern is whether people can get into the system, or whether geographic or financial barriers prevent them from receiving care. As a result, access indicators have traditionally focused on entry into the health care system, such as number of providers available, whether patients have insurance, and the proportion of eligibles with at least one visit to a provider.

In contrast to "access," the concept of "quality" has traditionally been used to evaluate a patient's experience *within* the health care system. The distinction between access and quality is blurred, however, where financing and delivery systems are merged (Docteur, Colby and Gold, 1996).

Thus, the discussion of access in managed care may be more about appropriateness of care given the incentive structure is to limit overutilization of services. Unlike the "more is better" attitude of fee-for-service, managed care providers act as gatekeepers to high cost specialty care. Thus, in managed care, access to care is not simply a matter of whether providers are geographically convenient, or out-of-pocket costs are affordable, but also, whether the gatekeeper will authorize a particular service.

Given the difficulty of distinguishing between access measures and quality measures, we have decided to de-emphasize use of these terms. Instead, it may be more useful to think of the study as developing *performance measures* that can utilize claims data to determine whether patients receive "timely and appropriate care."

1.4 Conceptual Framework

We use a three dimensional model to capture aspects of performance. This conceptual framework is shown in Exhibit 1-1. The three dimensions of performance measurement in our framework are: resource availability, utilization, and satisfaction. Resource availability measures reflect the availability (within the network) and convenience (location, hours) of providers and services. These indicators measure "potential access" for patients.

Within the centerpiece of utilization measures, we have five subcomponents for types of care: (1) preventive care, (2) chronic disease care, (3) diagnosis-specific care, (4) specialty referral care, and (5) primary care. These five subcomponents capture aspects of care for which managed care plans have very different financial incentives than do fee-for-service providers.

- ***Preventive care*** includes immunizations and screening tests. This is an area of care in which HMOs may surpass fee-for-service practice, given the HMO incentives to contain costs of future care and their philosophical emphasis on prevention.

- ***Chronic disease care*** measures examine whether patients are receiving appropriate follow-up care for selected chronic conditions. The financial incentives for capitation again may lead HMOs to provide superior care to prevent future complications, although these incentives will vary by condition and type of intervention.

- ***Diagnosis specific care*** examines treatment for acute conditions or episodes. Again, we would expect HMOs to provide care that would prevent complications and expenses in the future.

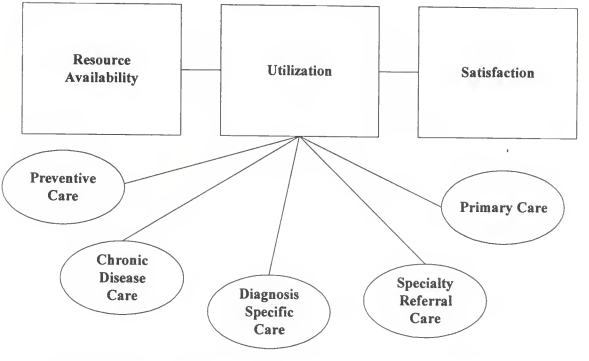
- ***Specialty referral care*** is an area of concern for HMO enrollees. Given financial incentives to reduce costs, patients may not be receiving specialty referrals on a timely or appropriate basis, or may not be receiving costly services/procedures

from specialty providers. Defining appropriate specialty care is particularly problematic, given the lack of consensus on when it should be sought.

- Finally, we have a broad category for ***primary care***. This includes broader measures of whether patients "get into the system" for any care.

EXHIBIT 1-1

Monitoring Delivery of Timely and Appropriate Care: Conceptual Framework



Given that our study is testing measures that can be developed using claims/encounter data, our indicators focus on the utilization portion of performance measurement. Although our case study investigates issues of plan structure and satisfaction measurement in a well-established managed care organization, our indicators reflect the various aspects of utilization we have described above.

1.5 Selection of Indicators

Crucial to the monitoring effort is the selection of appropriate and measurable indicators. Selection of indicators should be based on their policy relevance, the availability of data, and the extent to which various measures address important public health priorities. Absolutely essential is that the indicator can be constructed with available data. In addition, each indicator should meet at least one of the following criteria:

- Be of epidemiological or clinical importance;
- Have sufficient clinical consensus on its need or associated treatment protocol
- Be a high incidence procedure or related to a high incidence disease;
- Have a high expected health impact; or
- Be related to costly services.

A natural inclination in comparing performance measures for managed care and fee-for-service medicine is to use fee-for-service as a benchmark of "appropriate provision of services," and assume that lower levels of use for managed care patients represents "poorer performance." However, for many conventional measures of performance, there is little or no evidence that fee-for-service represents some optimal standard of care. For instance, a finding that managed care patients average fewer visits per year than fee-for-service patients does not necessarily mean that managed care patients have too few visits. An alternative interpretation would be that fee-for-service patients are overutilizing care, or that differences

in patient health status account for the differential. Thus, to the extent possible, performance indicators should be based on clinical standards of care, supported (directly) by published research and (indirectly) by guidelines that are evidence-based, and the proportion of patients for whom these standards are met, rather than on vague measures of usage (such as average number of visits per beneficiary) that are difficult or impossible to interpret.

There may also be trade-offs between ease/accuracy of measurement and salience in selection of indicators. For example, screenings and immunizations provide easy to interpret indicators and meet several of the selection criteria. The mammography rate for women is a well-established performance indicator (with a strong clinical consensus and high expected impact on health status). In addition, the results are easily interpretable: higher rates of mammography are better than lower rates. Although other screening tests may fit all these criteria, a monitoring system must have broader focus.

Those wary of managed care organizations are often concerned that they will under-provide high-cost procedures and treatments. However, compared to screenings and immunizations, utilization rates of specialty care are difficult to interpret. Without detailed clinical data, it is difficult to evaluate a rate of lens replacement, since the appropriate rate of surgery will differ across different populations. Lower rates in managed care could indicate underutilization, or, given the incentive structure of the fee-for-service system, may imply overutilization in fee-for-service. Nonetheless, it is important to address the area of specialty care, even if the performance indicators may be less well supported by clinical consensus than an indicator like mammography.

1.6 Indicators Included in This Study

To develop indicators of performance, we began with the framework of Siu *et al.* (1992), of examining leading causes of morbidity and mortality among the elderly. As discussed above, our goal was to generate a list of indicators meeting the selection criteria, that were spread across the five different subcomponents of utilization in our framework. The final list of indicators is presented in Table 1-1.[4] Most indicators were developed for all three sectors--fee-for-service, Health Centers Division (HCD) within HPHC (the staff model division), and the Medical Groups Division (MGD) of HPHC (the IPA division). However, a few took advantage of unique aspects of data available in the HCD and were constructed only for that division.

- The two preventive care indicators, breast cancer screening rate and colon cancer screening rate were developed for both fee-for-service and managed care.[5]

- The chronic disease indicators include two measures for diabetic care, rate of retinal eye exam and proportion of patients with at least two visits during a twelve-month period. Chronic disease care also includes treatment patterns for ambulatory care sensitive (ACS) conditions, including admission rates during a twelve month period, and rates of care prior to admission and following discharge from the ACS hospitalization. The chronic condition indicators also take advantage of the HCD data base that provides prescription drug information, to calculate rates of follow-up visits for patients on antihypertensives or antidepressants.

[4] Section 4.2 describes a series of other indicators that were considered for construction, but were at some point eliminated from the list.

[5] Detailed definitions of indicators and discussion of their construction can be found in Chapter 3.

Table 1-1

Summary of Medicare Performance Indicators

Indicator	Fee-for Service	Harvard Pilgrim Health Care: Health Centers Division	Harvard Pilgrim Health Care: Medical Groups Division
Preventive Care			
Breast cancer screening rate	X	X	X
Colon cancer screening rate	X	X	X
Chronic Disease Care			
Diabetes:			
Retinal examination rate	X	X	X
Visit rate	X	X	X
Ambulatory care sensitive conditions:			
Admission rate	X	X	X
Rate of pre-hospital care	X	X	X
Rate of post-hospital care	X	X	X
Anti-hypertensive follow-up rate	–	X	–
Anti-depressant follow-up rate	–	X	–
Diagnosis-Specific Care			
Rate of post-hospital follow-up for:			
Myocardial infarction	X	X	X
Depression	X	X	X
Rate of follow-up for abnormal mammogram	–	X	–
Specialty Referral Care			
Population based rate of lens replacement	X	X	X
Population based rate of hip and knee replacement	X	X	X
Population based rate of coronary revascularization	X	X	X
Rate of breast cancer oncology follow-up	–	X	–
Primary Care			
New enrollee visit rate	–	X	X
Annual visit rate	X	X	X
Continuity of care index	–	X	–

NOTE:
X Indicator constructed for this setting.
– Indicator not constructed for this setting.

- Diagnosis-specific indicators include rates of post-hospitalization follow-up for individuals with myocardial infarction or depression (calculated for both fee-for-service and managed care) and rate of follow-up for abnormal mammogram, which again takes advantage of a unique aspect of the HCD data.

- Specialty care indicators include rate of oncology or surgery follow-up for breast cancer patients, and population-based rates for three common procedures among the elderly, lens replacement, major joint replacement, and coronary revascularization.

- The primary care indicators include a continuity of care index, a new enrollee visit rate, and the proportion of patients receiving an annual visit.

1.7 Analysis of Disenrollees

Generating performance indicators is a time- and resource-consuming activity for any managed care organization. Thus, any set of performance indicators that an HMO might be required to report must be relatively limited, and cannot cover all aspects of care. Although our list of indicators was constructed to cover different types of care (e.g., preventive, specialty) and include different types of conditions (e.g., diabetes, mental health, myocardial infarction), they obviously cannot cover the entire spectrum of care. It is conceivable, for example, that an HMO might excel at treating diabetics, but have poor management of other chronic conditions.

Disenrollment rates are often considered another sentinel indicator of HMO performance. Among HMOs, a high disenrollment rate may signal poor performance, as members leave for either fee-for-service or another HMO. High disenrollment rates for some group of members (for example, the oldest old, those with chronic conditions) may signal

dissatisfaction with the plan's performance in providing care. Thus, although the disenrollment analysis is in many ways less "precise" than the utilization-based performance indicators, it may detect other areas in which patients are satisfied or dissatisfied with their care.

1.8 Organization of the Report

The remainder of the report is divided into three chapters. Chapter 2 describes the data sources used in the analysis, our sample selection criteria, and an overview of methods, such as age adjustment, that apply to all indicators. Chapter 3 presents detailed definitions for each of the indicators, the process of constructing the indicators, and results for the three sectors. Because of our emphasis on determining whether indicators can be constructed in a meaningful manner, we report indicator-specific methodological and data issues in this chapter, rather than in Chapter 2 which provides a broader overview. Chapter 4 discusses these results and the implications of our study for developing a monitoring system.

We also provide three appendices to the report. Appendix A presents a discussion of the HMO which provided data for the analysis, which serves to explain differences in the performance of the two divisions, and to address the resource availability and satisfaction aspects of our conceptual framework. Appendix B presents detailed sample sizes for each of the indicators. Appendix C includes file layouts for the HPHC data sets that were used in the analysis.

2

Data Sources and Methods Overview

This chapter describes data sources and methodology used to construct the performance indicators. We first describe in detail the nature of the data files from HPHC and HCFA that were used to construct the indicators. Next we describe our sample selection and method of defining the catchment area from which fee-for-service beneficiaries were selected. Then we discuss several technical issues we encountered in constructing the indicators and the types of external benchmarks we used for comparison with our results.

2.1 Data Sources

Our managed care data come from two divisions of Harvard Pilgrim Health Care: the staff model Health Centers Division and the IPA model Medical Groups Division. The two divisions have separate and very different data systems. Fee-for-service data come from HCFA's Medicare records.

2.1.1 Harvard Pilgrim Health Care (HPHC)

Data for constructing the access indicators for beneficiaries enrolled in HPHC come from the following sources:[1]

[1] Appendix C provides a more detailed description of data elements available in the HPHC systems.

Enrollment Data: The Membership Utility Program (MUP) is a SAS file created from enrollment information which covers all divisions of HPHC and includes information about insurance coverage. It also includes demographic information such as date of birth, gender, and zip code of residence.

Health Centers Division (HCD): The HCD is the staff model division of HPHC. Information on clinic encounters in the 14 sites is kept electronically. The system, called the Automated Medical Record System (AMRS), was developed specifically for HPHC and was one of the earliest electronic patient records. Diagnoses, procedures, and tests are represented on the file by COSTAR codes, an ambulatory medical record system that was originally developed to support HPHC medical practices.[2]

The HCD uses a computer system called TOPPS for handling all claims and utilization "outside" the Centers themselves. This system uses ICD-9 codes for claims from hospitals. The structure contains up to six diagnoses and up to 3 surgical procedures.

Medical Groups Division (MGD): In the MGD, HPHC contracts with groups of physicians who are geographically dispersed throughout the region and are not on HPHC's staff. Records for care in the MGD are based on dummy claims submitted to HPHC to document care. These files are less rich in detail than the AMRS database in the HCD but are very much like most other claims databases. The Clinic File contains claims for services provided in the offices of the primary care providers in the MGD, the Outpatient File contains claims for outpatient services not provided by the primary care provider, i.e.

[2] Thus, data from the clinics do not use ICD-9 or CPT-4 coding.

referrals, and the Institutional File contains claims for hospitalizations. These files contain diagnosis and procedure information using ICD-9 and CPT-4 codes. The MGD institutional file differs from the HCD file in two main ways: (1) the MGD file contains up to 3 diagnoses (versus 6 in HCD), and (2) the MGD file contains up to 6 surgical procedures (versus 3 in HCD).

2.1.2 Fee-for-Service

Data for constructing the indicators for Medicare beneficiaries come from the following sources:

Enrollment Data: The Denominator file contains information on all Medicare beneficiaries. Variables on the file include zip code of residence, reason for eligibility, whether the individual receives Part A and/or Part B benefits (with a monthly indicator), and whether the individual belongs to an HMO (with a monthly indicator). The cross-reference file contains information on beneficiaries whose HICNOs (identifying numbers) change, allowing these beneficiaries to be tracked throughout the study period. Use of the cross-reference file is especially important for indicators that requiring tracking the same individual across a longer time period (as the likelihood of the identifier changing increases over time) and for female beneficiaries (who are more likely to receive benefits through a spouse's work history, and whose HICNO will change with changing marital status).[3] The cross-reference file was used in the construction of all indicators.

[3] For example, our rate of mammography using physician/supplier claims during a 24 month period for the four-state New England area rose from 34.9 percent without cross-referencing to 38.1 percent after using the cross-reference file.

Hospitalization Data: The MedPAR file contains information on all hospitalizations for Medicare beneficiaries. Variables on the file include patient's HICNO, date of admission and discharge, up to 10 diagnosis and 10 procedure codes, and patient's DRG.

Physician Utilization Data: The Part B physician/supplier files contain the universe of physician claims for beneficiaries in our catchment area. Variables on the file include patient's HICNO, date of service, physician specialty, a unique physician identifier (UPIN), and diagnosis and procedure codes.

Hospital Outpatient Department Data: The hospital outpatient file contains a 100 percent sample of claim-level information on procedures performed in these facilities. Variables on the file include patient's HICNO, date of service, and procedure codes.

2.2 Sample Selection

The sample criteria vary considerably across our indicators, based on the relevant population and time frame. This section describes our overall criteria for beneficiaries to be included in our analysis. In Chapter 3 we describe in detail the criteria for each indicator. These were constructed to require continuous enrollment across the analytic period (e.g. to allow 60 day follow-up)[4].

[4] Alternatively, we could have allowed those eligible for a portion of the period to enter the analysis, and weighted the indicators by the fraction of the period for which they were eligible. The approach we took, requiring continuous eligibility across the entire period, is consistent with the approach HCFA uses in its calculation of mammography rates. It is similar to that used in HEDIS, which requires continuous enrollment but allows one short break in enrollment.

2.2.1 HPHC

For both divisions of the health plan, Medicare beneficiaries who were age 65 and older during the study period (January 1994-December 1995) were identified. The HCD contained roughly 11,000 Medicare members, while the MGD had about half that number. Members who switched from one division to the other during the study period were not included in the sample. Only 2 percent of the sample was lost due to this restriction. Members were required to bo continuously enrolled in the plan for a members period defined on an indicator - specific basis.

2.2.2 Fee-For-Service

To be included in the fee-for-service sample, beneficiaries were required to meet the following requirements: age 65 and older as of January 1, 1994; having both Part A and B coverage; and not enrolled in an HMO. Beneficiaries meeting these criteria were identified from the denominator file. In addition, the beneficiary's place of residence, as indicated on the denominator file, was required to be within the HPHC catchment area, as described below.

2.2.3 Defining the HPHC Catchment Area

HPHC constructed a list of zip codes in which their elderly beneficiaries resided during the study period, and the number of beneficiaries living in each zip code. Based on this listing, we acquired claims data for beneficiaries living in four states: Massachusetts,

New Hampshire, Rhode Island, and Vermont. (Virtually all HPHC Medicare beneficiaries reside in one of these states.) We merged this information onto the denominator file for Medicare beneficiaries and constructed three alternatives for the HPHC catchment area:

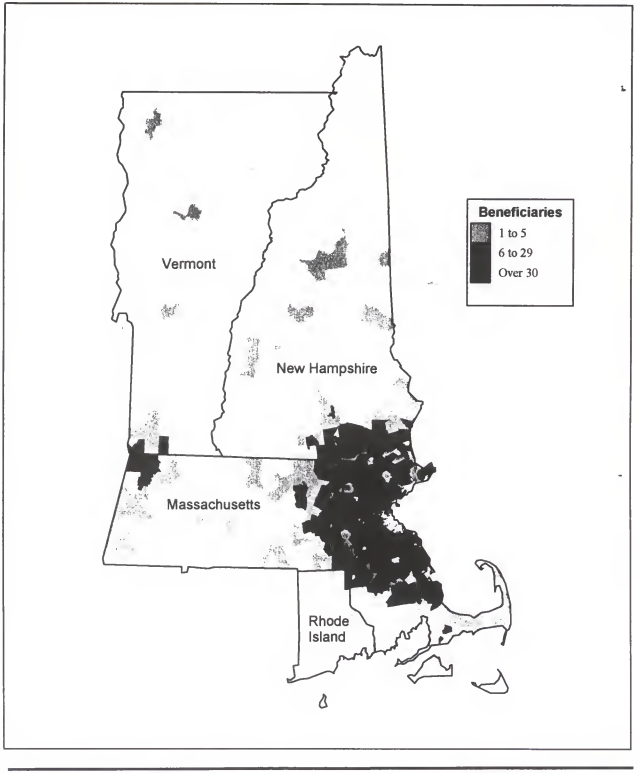
(1) Four-state area: Beneficiaries living in Vermont, New Hampshire, Massachusetts, and Rhode Island. This catchment area produced a sample of 1,026,183 beneficiaries meeting the basic fee-for-service sample criteria.

(2) HPHC catchment area: Beneficiaries in a "3 digit zip code" in which HPHC had at least 10 Medicare members during the time period. The "3 digit zip code" is based on areas with the same first 3 digits of their zip codes, which tend to be clustered together geographically. For example, zip codes which begin with "021" are clustered in Boston's western suburbs. This definition results in a geographic area of southern Vermont, southern New Hampshire, eastern Rhode Island, and Massachusetts excluding a central region. This geographic limitation reduced the fee-for-service sample to 75 percent of that found above.

(3) Refined HPHC catchment area: We constructed a map of zip codes in which HPHC Medicare beneficiaries reside (See Exhibit 2-1). Zip codes were classified into three categories: those in which 1 to 5 HPHC Medicare beneficiaries reside, those with 6 to 29 beneficiaries, and those with over 30 beneficiaries. The map indicates there are two major catchment areas: one surrounding Boston, and one in the far western portion of Massachusetts. The eastern catchment area corresponds fairly closely to the Boston CMSA. However, it does not extend as far west (Worcester area) as the CMSA or include New Bedford to the south. (These areas correspond to the location of HPHC providers.) We have constructed a comparison area that consists of all contiguous zip codes that comprise these

Exhibit 2-1

Zip Codes in which HPHC Medicare Beneficiaries Reside



catchment areas in which at least one HPHC Medicare beneficiary resides. This geographic limitation reduces the sample to 37 percent of the original 4 state sample.

To determine the effect of varying the catchment area, we constructed one indicator, breast cancer screening rate, using each of the three definitions. We found that, compared to the four-state area (with a rate of 39.9 percent), the utilization rate was 0.2 percentage points higher using the 3-digit zip code area and 0.9 percentage points higher using the refined catchment area. Although the results from the different catchment areas are quite similar, we feel the refined area best matches fee-for-service and HPHC beneficiaries, and we used this geographic definition to construct each of the indicators.

2.3 Constructing Annual Indicators

Several of our indicators are constructed as annual population-based utilization rates. Namely, the admission rate for ambulatory care sensitive conditions and all of our surgical (specialists) procedures are constructed as annual rates with the eligible sample as the denominator. One option for determining the sample would have been to include all beneficiaries who met the eligibility criteria, using the first 12 months for which they were eligible in our time frame. However, for these indicators, we calculated a utilization rate for 1994 basing the denominator on all individuals who were eligible for all of the calendar year. We then calculated the utilization rate for 1995, again basing the denominator on all

individuals eligible for the entire calendar year. We then averaged the two years.[5] (Very few HPHC beneficiaries were "lost" because they belonged to the plan for 12 consecutive months, but neither calendar year.) For this report, we present the averaged values in the text, and the annual rates in Appendix Table B-1.

2.4 Adjusted vs. Unadjusted Rates

The aged Medicare population enrolled in HPHC is substantially younger than the overall Medicare population. Nationally, 56 percent of aged beneficiaries are aged 65-74, compared to 70 percent of the HCD enrollees and 68 percent of the MGD enrollees. In addition, nationally 11 percent of aged beneficiaries are age 85 and older, compared to 4 percent in the HCD and 7 percent in the MGD.

In addition to the unadjusted rates, we present age-adjusted rates for HCD and MGD, standardized according to the proportion of patients in the fee-for-service sample in three groups: age 65-74, age 75-84, and age 85 and older. We also present the indicator for each of these three age groups, although the small sample sizes for many of the indicators result in relatively large confidence intervals for the age-specific rates. Breakdowns by other demographic factors, such as race, were not constructed because of small sample sizes.

Our performance indicators were developed to rely primarily on tracer conditions, with relatively well-defined populations in need of care. Use of tracer conditions allows us

[5] This approach simplifies indicator construction somewhat, since beneficiaries do not have to be tracked across multiple years (many claims-based files are constructed annually.) It also allows us to examine, for a subset of indicators, how the level of performance varies over a two-year period.

to tie care to established clinical standards and greatly reduces the heterogeneity of the denominator population. Some of our indicators require no risk adjustment within the tracer group. For example, follow-up of some type is recommended for all women with abnormal mammograms. For some indicators (e.g., ambulatory care sensitive admission rates), it would be desirable to adjust for severity of the patient population. However, given the complexity of adequately risk-adjusting, especially given the different coding schemes used in the different data systems, we only perform the age-adjustment.

2.5 Comparison with External Benchmarks

For a number of our indicators, we are able to compare our results with external benchmarks. These benchmarks may take the form of goals that have been stated for access, such as the Healthy People 2000 objectives (DHHS, 1991), or previous studies which have constructed similar indicators, such as PPRC (1995) or the DHHS Report to Congress (1994). We do not compare our results with those from HEDIS, since previous HEDIS reports have been based on the under-65 population, while our study includes only the elderly.

3

Indicator Specific Methods, Construction, and Results

In this chapter we define each of the performance indicators and discuss the methodological issues faced in their construction. We also present results for each of the three sectors (fee-for-service, HCD, and MGD) overall and stratified by age. Table 3-1 presents summary values for each indicator. (The 95 percent confidence interval is presented in parentheses below each indicator value.) For those wishing more detail on sample sizes and breakdowns by year, Appendix B presents more complete data on the rates for every indicator.

3.1 Preventive Care

3.1.1 Breast Cancer Screening Rate

Definition

Percentage of female beneficiaries receiving a mammogram during a 24-month period.

Table 3-1

Age-Adjusted Summary of Performance Indicators

	Fee-For Service	HPHC Health Centers Division	HPHC Medical Groups Division
Preventive Care			
Breast Cancer Screening Rate Percentage of female beneficiaries receiving a mammogram during a 24 month period	40.8% (40.6, 41.0)	77.0% (75.0, 79.0)	64.8% (61.6, 68.0)
Colon Cancer Screening Rate Percentage of beneficiaries with a fecal occult blood test sigmoidoscopy, or colonoscopy during a 24 month period	35.8% (35.6, 36.0)	58.6% (57.5, 60.7)	52.7% (50.5, 54.9)
Chronic Disease Care			
Rates of Secondary Preventive Services for Diabetes Mellitus Percentage of beneficiaries with a diabetes diagnosis with each of the following during a 12 month period:			
Retinal examination	54.8% (54.3, 55.3)	67.5% (64.7, 70.3)	63.9% (59.6, 68.2)
Two or more visits with a primary care provider or endocrinologist	61.2% (60.7, 61.7)	94.6% (92.5, 96.7)	90.7% (90.0, 91.4)
Population-Based Admission Rate for Ambulatory Care Sensitive Conditions Admission rates per 1,000 eligibles during a 12 month period	71.9 (71.1, 72.7)	60.1 (55.7, 64.5)	44.4 (38.4, 50.4)
Rate of Pre-Hospital Care for Ambulatory Care Sensitive Admissions Percentage of beneficiaries with an ACS admission with at least one visit during the 60 days prior to admission	80.3% (79.7, 80.9)	85.8% (81.7, 89.9)	85.3% (79.1, 91.5)
Rate of Post-Hospital Care for Ambulatory Care Sensitive Admissions Percentage of beneficiaries with an ACS admission with at least one visit during the 30 days following discharge	78.4% (77.8, 79.9)	81.8% (77.3, 86.3)	84.6% (78.5, 90.7)
Anti-hypertensive Follow-up Rate Percentage of beneficiaries with at least one follow-up visit within 8 months after receiving a prescription for an anti-hypertensive	—	93.0% (92.1, 93.9)	—

Table 3-1 (continued)

Age-Adjusted Summary of Performance Indicators

	Fee-For Service	HPHC Health Centers Division	HPHC Medical Groups Division
Anti-depressant Follow-up Rate Percentage of beneficiaries with at least one follow-up visit within 8 months after receiving a prescription for an anti-depressant	—	93.2% (91.7, 94.7)	—
Diagnosis-Specific Care			
Rate of Post-Hospital Follow-up for Myocardial Infarction Percentage of beneficiaries hospitalized for MI with at least one cardiology or primary care visit within 60 days of discharge	73.3% (71.7, 74.9)	90.7% (83.8, 97.6)	93.2% (83.8, 100)
Rate of Post-Hospital Follow-up for Depression Percentage of beneficiaries hospitalized for depression with at least one primary care or mental health visit within 14 days of discharge	65.8% (62.7, 68.9)	64.5% (37.3, 92.2)	80.3% (57.6, 100)
Rate of Follow-up for Abnormal Mammogram Percentage of female beneficiaries with an abnormal mammogram who receive repeat mammogram, ultrasound, biopsy or surgery within 15 days	—	46.1% (34.2, 58.0)	—
Specialty Referral Care			
Population-based Rate of Lens Replacement Rate of lens replacements per thousand beneficiaries during a 12 month period	37.9 (37.3, 38.5)	32.5 (29.1, 35.9)	16.6 (12.6, 20.6)
Population-based Rate of Hip and Knee Replacement Rate of total hip and knee replacement per thousand beneficiaries during a 12 month period	6.8 (6.5, 7.1)	5.9 (4.3, 7.5)	7.7 (4.9, 10.5)
Population-based Rate of Coronary Revascularization Rate of coronary bypass and angioplasty per thousand beneficiaries during a 12 month period	8.6 (8.3, 8.9)	7.6 (5.7, 9.5)	4.1 (1.7, 6.5)
Rate of Breast Cancer Oncology Follow-up Percentage of female beneficiaries with at least one oncology or general surgery visit in the 6 months following an initial diagnosis of breast cancer	—	71.0% (63.7, 78.3)	—

Table 3-1 (continued)

Age-Adjusted Summary of Performance Indicators

	Fee-For Service	HPHC Health Centers Division	HPHC Medical Groups Division
Primary Care			
Rate of New Enrollees with a Visit Percentage of new enrollees with at least one visit during the first two months of enrollment	—	73.9% (70.7, 77.1)	48.7% (45.1, 52.3)
Rate of Beneficiaries with a Visit Percentage of beneficiaries with at least one visit with a primary care physician or specialist during a 12 month period	88.4% (88.3, 88.5)	93.9% (91.7, 96.1)	90.9% (88.3, 93.5)
Continuity of Care Index Proportion of visits per patient for primary care that are with the patient's primary care physician	—	71.3% (66.7, 75.9)	—

NOTE: Medicare fee-for-service did not cover routine colon cancer screening during the study period. Our rate may undercount the proportion of beneficiaries receiving the service if they paid out of pocket.

Data Specifications

Denominator: Female aged beneficiaries enrolled continuously for the 24-month study period.

Numerator: Those with a mammogram (CPT = 76091, 76092; AMRS = R035—Mammogram [in use through August 1994]; R340—Mammogram Bilateral [in use starting August 1994] and R341—Mammogram Unilateral [in use starting August 1994]).

HPHC Indicator Construction

Enrollment of women in the Medicare population in HPHC was initially analyzed from the MUPS demographic files. From the MUPS file, we identified female members in HPHC age 65 and over for some or all of the study period. We then identified those who were enrolled for 24 months continuously within one division during the period January 1994 to December 1995. We then analyzed a 50 percent random sample from each division, leaving us with samples of 1,638 women in the HCD and 910 women in the MGD.[1]

HCD: From the AMRS we downloaded all encounters during the study period (January 1, 1994 to December 31, 1995) for the women in the denominator which included one of three test codes for mammography.

[1] The nature of the encounter data makes processing of large samples for the HCD prohibitively time-consuming since it is an automated medical record and not a claims-based file. Although processing the entire MGD file is not substantially more expensive than processing a sample, a 50 percent random sample was drawn, analogous to the procedure used for the HCD. The resulting random samples are still much larger than the samples we found for many of our diagnosis-specific indicators.

MGD: From dummy claims we searched for CPT-4 codes for mammography during the two-year study period. Mammography was one of the first two indicators we constructed. Initial attempts to locate mammogram codes for the MGD identified only 2 percent of women with claims for a mammogram in a two-year period, including no claims in 1994. Investigating further, we discovered that claims for SeniorCare and Plan 65, the insurance products which enrolled Medicare recipients until 1995, were located not in the Ambulatory Claims Files, but rather in hospital claims files under an identifying code for SeniorCare. We included all claims from both the ambulatory and the institutional files in constructing the indicator.

Fee-for-Service Indicator Construction

From the denominator file, we identified women meeting the sample eligibility criteria (age 65 or older, continuously enrolled in fee-for-service) for the entire 24-month study period, yielding a sample of 211,026. We then searched physician/supplier and hospital outpatient claims files for claims with CPT-4 codes for mammography during the two-year study period. Although the vast majority of mammography claims were located in the physician/supplier file, we found that 58 percent of women with a mammogram had claims in both the physician/supplier and hospital outpatient department files, and 4 percent had a claim in the outpatient department file but no physician/supplier claim. A claim from either file was taken as evidence that the woman had undergone a mammogram.

Results

From the three data sets, the percentages of women who had a mammogram performed during the 24-month period were:

BREAST CANCER SCREENING RATE (Confidence Intervals in Parentheses)	Fee-for-Service	**HPHC** Health Centers Division	**HPHC** Medical Groups Division
All eligibles (age adjusted)	40.8% (40.6, 41.0)	77.0% (75.0, 79.0)	64.8% (61.6, 68.0)
Age 65-74	53.7 (53.4, 54.0)	86.6 (84.4, 88.8)	78.1 (74.2,82.0)
Age 75-84	35.9 (35.6, 36.2)	76.6 (73.1, 80.1)	61.2 (56.0,66.4)
Age 85 and older	12.2 (11.8, 12.6)	46.7 (37.1, 56.0)	31.1 (21.0,41.2)

The rate of mammography screening in the HCD is substantially higher than for the MGD, 77 percent compared to 65 percent. The uniform reminder system used by the HCD to prompt providers to offer annual screening mammography may help explain its exceptionally high rate and the difference between the two divisions. HCD and MGD are both performing above the goal for mammography set out in Healthy People 2000, the objectives set for the Nation's health into the next century. (That goal is for 60 percent of women age 50 and older to receive a mammogram within the previous one to two years). The rate in fee-for-service of 41 percent is similar to the mammography rate during a 24-month period of 38.6 percent nationally among the elderly found by PPRC (1995) and the 39.3 percent found by HCFA (1998).

We were also interested in examining variation in performance for our indicators within the two divisions of HPHC. Although the small samples and large number of practices make it impossible to look for meaningful differences among the groups of the MGD, we were able to construct mammography rates for each of the 14 centers of the HCD, as shown below.

Center	Sample	Proportion Receiving Mammography
A	33	78.8%
B	149	75.8
C	140	76.4
D	143	67.8
E	19	84.2
F	224	83.6
G	221	84.7
H	83	81.4
I	42	72.4
J	41	78.9
K	189	86.8
L	125	74.4
M	98	85.7
Total	1,638	80.1

The proportion of women receiving mammography in each center is quite high. Seven of the 14 centers had rates exceeding 80 percent. The lowest rate is 67.8% for Center D, which is still well above the rate in fee-for-service or in the MGD (as well as the Healthy

People 2000 objective). Because of the small sample sizes for many centers, we did not construct confidence intervals around each of the rates. However, a chi-square test for differences in proportions across all centers was significant at the one percent level.

3.1.2 Colon Cancer Screening Rate

Definition

Percentage of beneficiaries receiving a fecal occult blood test, sigmoidoscopy, or colonoscopy during a 24-month period.

Data Specifications

Denominator: Aged beneficiaries enrolled continuously for the 24-month study period.

Numerator: Those with a fecal occult blood test (CPT= 82270; AMRS = TY150, Q700), stool occult blood test, colonoscopy or sigmoidoscopy (CPT = 45300, 45305, 45308, 45309, 45315, 45320, 45330, 45331, 45332, 45338, 45339, 45378, 45380, 45383, 45384, 45385; AMRS = W013 - sigmoidoscopy; T073 - colonoscopy, diagnostic; T074 - colonoscopy, for biopsy; T075 - colonoscopy, for stricture dilation; T076 - colonoscopy, for polypetctomy; T077 - colonoscopy - for control of hemorrhage; T078 - flexible sigmoidoscopy, for biopsy; T079 - flexible sigmoidoscopy, for polypectomy; T080 - flexible sigmoidoscopy, for ablation of tumor; T081 - rigid sigmoidoscopy, diagnostic; T082 - proctosigmoidoscopy, for biopsy; T083 - rigid sigmoidoscopy, anoscopy; K404 - negative sigmoidoscopy exam; T386 - sigmoidoscopy, diagnostic; T387 - sigmoidoscopy, for removal of colonic polyp; T549 - flexible sigmoidoscopy, diagnostic; T569 - proctosigmoidoscopy, direct; Y144 -

sigmoidoscopy with biopsy, Y303 - sigmoidoscopy; Y486 - colonoscopy, Y489 - colonoscopy and polypectomy).

HPHC Indicator Construction

From the MUPS enrollment file, we identified members in HPHC age 65 and older who were enrolled for 24 months continuously within one division during the period January 1994 to December 1995. We then took a random sample from each division, leaving us with 2,089 beneficiaries in the HCD and 2,045 beneficiaries in the MGD.

HCD: From the AMRS we downloaded all encounters during the study period (January 1, 1994 to December 31, 1995) for beneficiaries in the denominator which included one of the test codes for colorectal cancer screening.

MGD: From dummy claims we searched for CPT-4 codes for colorectal cancer screening during the two-year study period.

Fee-for-Service Indicator Construction

From the denominator file, we identified individuals meeting the sample eligibility criteria for the entire study period, resulting in a sample of 339,627. We then searched physician/supplier claims files for claims with CPT-4 codes for fecal occult blood test, colonoscopy, or sigmoidoscopy during the two year study period. Individuals receiving any of the three procedures were considered to have received a colon cancer screening test.

Results

The rates of colon cancer screening, by fecal occult blood test, sigmoidoscopy or colonoscopy among the three groups were:

COLON CANCER SCREENING RATE		HPHC	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	35.8% (35.6, 36.0)	58.6% (57.5, 60.7)	52.7% (50.5, 54.9)
Age 65-74	38.1 (37.9, 38.3)	63.1 (60.4, 65.8)	57.5 (54.7, 60.3)
Age 75-84	35.9 (35.6, 36.2)	60.4 (56.7, 64.1)	51.9 (48.2, 55.6)
Age 85 and older	25.4 (25.0, 25.8)	33.3 (22.6, 44.0)	34.6 (26.0, 43.2)

The rate of colon cancer screening is substantially higher in the HCD and the MGD than the fee-for-service sector. Although the goals set out in Health People 2000 are not identical to our indicator, both divisions of the HMO appear to be performing above this objective. (That goal was for 50 percent of the population age 50 and older to have received fecal occult blood testing within the preceding one to two years.) In contrast, fee-for-service, with a screening rate of 35.8 percent, is well below that objective. However, colon cancer screening was not routinely covered in fee-for-service until 1988. Thus, some proportion of beneficiaries may have received the service but had no claims appear in our data.

3.2 Chronic Disease Care

3.2.1 Retinal Examination Rate for Diabetes

Definition

Percentage of beneficiaries with a diabetes diagnosis receiving a retinal screening examination during a 12-month period.

Data Specifications

Denominator: All aged beneficiaries continuously enrolled for at least 12 months in the study period following the appearance of a diagnosis of diabetes mellitus (ICD-9 = 250, AMRS = B120).[2]

Numerator: Those receiving a retinal exam (CPT = 92002-92014, 92225, 9226) or having a procedure or diagnosis code that suggests a dilated retinal exam was performed (AMRS = T589-retina: prophylaxis, cryotherapy; T590-retina: prophylaxis, photocoagulation; T591-retina: destruction of retinal lesion; T592-retina: destruction of retinopathy; T643-ocular photography: fluorescein angiography; T630-ophthalmoscopy with fundus photography; D115-retinal scars; D146-retinal arteriolar sclerosis; D149-retinal defect; D160-branch retinal vein occlusion; D164-retinal hole or tear; D165-central retinal artery occlusion; D208-central retinal vein occlusion; D209-epiretinal membrane; D228-branch retinal artery occlusion; D231-retinal vasculitis; D234-commotio retinae; D544-retinal vascular occlusion; D550-retinopathy; D551-arteriosclerotic retinopathy; D552-diabetic retinopathy; D553-

[2] For example, a beneficiary with a diagnosis appearing in March 1994 would be followed for 12 months (including part of 1995).

hypertensive retinopathy; D554-detached retina; D555-retinal degenerative disease; D562-diabetic retinopathy, background; D563-diabetic retinopathy, proliferative; D163-central serous retinopathy; D510-chorioretinitis; D161-chorioretinitis from toxoplasmosis; D212-choroidal nevus; D162-drusen; D003-floaters; D558-lattice degeneration; D530-macular degeneration; D182-macular edema; D211-macular hole; D166-ocular histoplasmosis; D222-posterior vitreous detachment; D883-retinal detachment; D287-retinitis; D204-retinitis pigmentosa; D906-retinoschisis; D129-rubeosis iridis; D172-vitreous hemorrhage; D242-myelinated nerve fibers; D340-optic atrophy; D170-optic disc edema; D218-optic nervedrusen; D171-pseudopapilledema; D026-eye examination, normal, with modifier SET 175); D184-choroidal atrophy; D109-drusen; D600-uveitis; D140-optic disc drusen; D543-neuritis; D0290-papilledema; D155-pseudophakia; D177-pseudoexfoliative syndrome; D181-opaque posterior capsule; D410-cataract; D450-iritis; D704-aphakia).

HPHC Indicator Construction

HCD: For the HCD, 1,325 eligibles (12 percent) were found to have a diagnosis code for diabetes used in at least one encounter within the first year of the study period. This number was further refined to those who were enrolled for twelve months continuously following that diagnosis, yielding a sample of 1,239. These were further limited to those who had the diagnosis used during a face to face visit, and for whom the code was designated as "major," "minor" or "dictation" (i.e., not "rule out" or "presumptive") resulting in a sample of 1,092. These last requirements brought the definition of the denominator in the HCD into parallel with the definition for the MGD and fee-for-service data, where claims would only be generated for a face to face visit.

We had originally proposed using the AMRS codes for retinal examination (AMRS = D115, D131) to identify patients receiving the exam in the HCD.[3] However, physicians in this division have little incentive to code that the exam was completed (since reimbursement is not dependent on coding), and we found that they often coded a diagnosis which would normally require a retinal exam without coding the exam itself. Thus, we developed the list of codes that imply a retinal exam has been performed. For comparison, we also calculated the proportion of diabetics with a visit to an optometrist or an ophthalmologist.

In the HCD 67 percent of diabetics had a face to face visit to an eye specialist who charted a diagnostic code (e.g. diabetic retinopathy, vascular occlusion) that suggests a dilated retinal examination was performed, while roughly 77 percent of diabetics had a face to face encounter with an optometrist or an ophthalmologist. Significant effort went into defining the reason for the difference between these measures. Provider specialty is identified by the department in which the patient is seen and the characterization of this variable in the data set is excellent. Optometrists and ophthalmologists both provide primary eye care for adults in the HCD.[4] When an ophthalmologist or optometrist sees someone who is diabetic for whatever reason, one expects that they would include a retinal examination. However, there is no way to know if that is true from the AMRS data, because the eye doctors maintain a separate chart on paper, which includes their drawing of the retinal

[3]D131—Routine eye exam was not included in the codes used to identify patients.

[4]In the fee-for-service world, optometrists mostly do refractions and fit eye glasses. In rural areas, they maybe more likely to do retinal exams.

findings. Given this separate chart and the lack of any incentive to code "screening dilated retinal exam" every time one is done, the clinician is more likely to code what he or she sees, i.e. the abnormality, in the AMRS data. However, it is important to note that we may be undercounting patients (if some had no abnormality coded), or over counting patients (if some had a diagnosis coded, but no retinal exam performed). Since 77 percent of patients saw an optometrist/ophthalmologist, this is the upper limit on the number that could have received the exam.

The list of diagnostic codes that we used was created by an internist's review of all possible D-codes (diagnostic codes) in AMRS and then review of additional D-codes used by ophthalmologists and optometrists. The ophthalmologist who consulted on these codes thought that, because ophthalmologic exams within the HCD are charted freehand on paper, and thus not completely automated, a more precise estimate for this indicator would require chart review.

MGD: From the MGD, 587 eligibles (8 percent) have been identified as diabetic from at least one ICD-9 code from an ambulatory or inpatient visit during 1994. Of these, 495 remained in the plan for twelve months continuously following the documentation of diabetes.[5]

In the MGD, we searched claims for a CPT-4 code indicating that a retinal exam had been performed in the 12 months following the first appearance of a diabetes diagnosis. We

[5]For comparison, we also attempted to identify diabetics using pharmacy data. For the period 1993-1995, the pharmacy approach identified 539 diabetics, while the diagnosis approach found 630 (virtually all of whom were found using the pharmacy approach). In the end, we did not use the pharmacy information because we did not have comparable information available for the other HPHC division or fee-for-service beneficiaries.

found that 61 percent of diabetics had a claim coded with a specific CPT-4 code for screening retinal exam; 45 percent had a claim for a visit to an optometrist or an ophthalmologist. The lower number of visits to "ophthalmologists" than retinal exams in the MGD suggests the possibility of imprecision in the Provider Specialty field for these claims. (Almost all claims for a retinal exam not coded as ophthalmologist/optometrist were coded as specialty "unknown".) While this indicator is based on the presence of the CPT-4 code, the imprecision of Provider Specialty in the MGD file may be important for other indicators that key off this variable.

Fee-for-Service Indicator Construction

We determined the denominator for this indicator by searching the physician/supplier claims files for appearance of the appropriate ICD-9 diagnosis codes for diabetes on a physician claim. (We excluded laboratory claims because of the high rate of diagnostic coding for rule-out of diabetes, and to be consistent with indicator construction in HPHC.) This yielded a sample of 34,260 beneficiaries (9 percent of eligibles) who remained in the sample for 12 months following the first documentation of diabetes.

For these individuals, we searched claims for a CPT-4 code indicating that a retinal exam had been performed in the 12 months following the first appearance of a diabetes diagnosis.

Results

The rate of diabetic retinal examination within a twelve-month period following the initial diagnosis of diabetes in our data, for each of the three groups was:

RETINAL EXAM RATE		**HPHC**	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	54.8% (54.3, 55.3)	67.5% (64.7, 70.3)	63.9% (59.6, 68.2)
Age 65-74	53.1 (52.3, 53.9)	64.8 (61.3, 68.3)	61.6 (56.0, 67.2)
Age 75-84	57.3 (56.5, 58.1)	68.9 (63.7, 74.1)	67.1 (60.2, 75.2)
Age 85 and older	52.2 (50.4, 54.0)	76.0 (57.3, 94.7)	62.1 (42.7, 81.5)

These rates suggest that in both HMO settings the completion of annual retinal screening for diabetics falls considerably short of the goal of 100 percent, but their achievement exceeds findings in fee-for-service practice. Our fee-for-service sample had a rate somewhat lower than that found in the two HMO divisions. However, in previous studies three states demonstrating the use of the Delmarva indicators had an overall annual rate of eye exams for diabetics of 45.9 percent (JAMA, 1995) and PPRC (1995) found a rate of 38.2 percent. Thus, our fee-for-service rate is noticeably higher than that found in other studies. Our higher fee-for-service utilization rate may result from use of a sample that is primarily urban, based in the Boston metropolitan area.

We required only one diabetes diagnosis for a beneficiary to be included in the sample for this indicator, since we did not want to leave out diabetics who had little contact with the health care system. Other studies, including HEDIS, require two diagnoses, in hopes of eliminating patients who had been coded with a rule-out diagnosis of diabetes. To test the sensitivity of the measure to definition of the sample, we also constructed the rate of the retinal exam for patients with two or more physician diagnoses in a twelve month period. The effect on the rate of retinal exam is minor, increasing it slightly in HCD and MGD, and decreasing it in fee-for-service. The effect on the sample size is more noteworthy. In fee-for-service the sample decreases by 38 percent, in the MGD by 20 percent, and in the HCD by 15 percent. The large proportion of the sample lost in fee-for-service is consistent with the hypothesis that many diabetes diagnoses are "rule outs". However, the 15 percent sample reduction in the HCD sample is more puzzling. Given the HCD coding system, a diagnosis of diabetes should only be found for patients with confirmed disease. That 15 percent of diabetics have only one diagnosis may reflect rule outs that were not coded as such, miscodes, failure to code the diagnosis for every visit, or that the patient had only one visit during the year.

3.2.2 Visit Rate for Diabetes

Definition

Percentage of beneficiaries with a diabetes diagnosis with two or more visits with a primary care provider or endocrinologist during a 12-month period.

Data Specifications

Denominator: Aged beneficiaries continuously enrolled for at least 12 months in the study period following the appearance of a diagnosis of diabetes mellitus (ICD-9 = 250).

Numerator: Those with two or more visits with a primary care provider or endocrinologist during the 12-month study period.

HPHC Indicator Construction

The denominator for this indicator was identical to that for diabetic retinal exam (Section 3.3), namely, those with a diagnosis of diabetes who remained in the plan for 12 consecutive months during the study period.

HCD: The characterization of specialty in the HCD files is excellent. We searched the AMRS for claims indicating that the individual had two or more visits (on different dates) with an internist or endocrinologist during the twelve months following the original diagnosis of diabetes. (HCD does not employ general/family practitioners as primary care physicians.) The AMRS data does not include inpatient and emergency room utilization, so it was not necessary to explicitly exclude these from the data.

MGD: Specialty characterization is less clean in the MGD. Specifically, as part of the SeniorCare/Plan 65 product, visits to medical groups frequently coded provider type as "Institution-Interdivisional Care" which does not specify level of professional (i.e., M.D., N.P.) or the specialty of the provider seen. We used this provider type as a proxy for internal medicine visits, but it doubtless is less specific than HCD. Using this specification we

searched the data for two or more visits in an outpatient setting following the first appearance of the diabetes diagnosis.

Fee-for-Service Indicator Construction

The denominator for this indicator was identical to that for diabetic retinal exam (Section 3.3), namely, those with a diagnosis of diabetes who remained in fee-for-service for 12 consecutive months during the study period.

We originally searched the physician/supplier claims file for claims with a specialty of general/family practice, internal medicine, endocrinology or geriatrics, and a place of service indicating office or outpatient clinic treatment. However, the results of this process yielded a surprisingly low number of patients with two or more visits during the year interval. Further examination of the data revealed that roughly 16 percent of diabetic claims were coded with a specialty of "multispecialty clinic or group practice" (compared with 12 percent coded with a specialty of internal medicine). Among claims with the multispecialty group or clinic code, almost half contained evaluation and management CPT-4 procedure codes. Thus, although we cannot tell the specialty of the provider seen by the beneficiary, it appears likely that many of these visits were for primary care. As a result, the specialties included in constructing the indicator were expanded to include the multispecialty clinic/group code.

Results

The proportion of diabetics having at least two visits with a primary care provider or an endocrinologist within a year following the initial appearance of a diabetes diagnosis in our data was as follows:

VISIT RATE FOR DIABETES		HPHC	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	61.2% (60.7, 61.7)	94.6% (92.5, 96.7)	90.7% (90.0, 91.4)
Age 65-74	59.4 (58.7, 60.1)	95.4 (92.9, 97.9)	91.5 (89.4, 93.6)
Age 75-84	61.9 (61.1, 62.7)	92.5 (88.1, 96.9)	90.7 (87.4, 94.0)
Age 85 and older	67.0 (65.3, 68.7)	100.0 (93.7, 100.0)	88.0 (75.3, 100.0)

These rates suggest that in both HMO settings the proportion of diabetics with at least two visits during a 12- month period is quite high. It is interesting to note that the visit rate is highest in the HCD, in which specialty can be accurately identified, and for which we are virtually certain that visits are with either a primary care physician or endocrinologist. Both fee-for-service and MGD data suffer from the coding of "groups" which contain unidentified or multiple specialties. Because of the prevalence of visits with this specialty code, and the appearance that much of what took place during these visits was primary care, we included them in our measures. To the extent that these "group" visits are with physicians other than

primary care physicians or endocrinologists, we would expect these results to be biased upwards compared to the HCD.

3.2.3 Admission Rate for Ambulatory Care Sensitive Conditions

Definition

Admission rates during a 12 month period for selected diagnoses for which admission may be potentially preventable through the use of primary care.

Data Specifications

Denominator: Aged beneficiaries continuously enrolled for a 12-month period.

Numerator: All admissions with a principal diagnosis of an ambulatory care sensitive (ACS) condition, defined as follows:

Tuberculosis: ICD-9 = 011
Chronic obstructive pulmonary disease: ICD-9 = 491, 492, 494, 496
Pneumonia: ICD-9 = 481, 482, 483, 485, 486
Asthma: ICD-9= 493
Congestive heart failure: ICD-9 = 428, 402.01, 402.11, 402.91, 518.4
Hypertension: ICD-9 = 401.0, 401.9, 402.00, 402.10, 402.90
Angina: ICD-9 = 411.1, 411.8, 413 (and no procedure)
Cellulitis: ICD-9 = 681, 682, 683, 686
Kidney-urinary infections: ICD-9 = 590, 599.0
Severe ENT infections: ICD-9 = 382, 462, 463, 465
Other tuberculosis: ICD-9 = 012, 013, 014, 015, 016, 017, 018
Diabetes with ketoacidosis or coma: ICD-9 = 250.1, 250.2, 250.3
Diabetes with other complications: ICD-9 = 250.9, 250.7
Diabetes with no complications: ICD-9 = 250.0
Hypoglycemia: ICD-9 = 250.8
Gastroenteritis: ICD-9 = 558.9
Dehydration: ICD-9 = 276.5
Nutritional Deficiencies: ICD-9 = 260, 261, 262, 268.0, 268.1

Grand mal status/epileptic convulsions: ICD-9 = 345
Other convulsions: ICD-9 = 780.3

The ambulatory care sensitive conditions are discussed in detail in Billings (1993).

HPHC Indicator Construction

From the MUPS enrollment file, we identified members in HPHC age 65 and older who were enrolled within one division for all of calendar year 1994 and/or all of calendar year 1995 (see Section 2.3 for a discussion of this sampling strategy). This yielded samples of 8,764 and 9,075 beneficiaries for 1994 and 1995, respectively, for the HCD and 4,196 and 4,319 beneficiaries for 1994 and 1995, respectively, for the MGD.

HCD: The institutional file was searched for admissions with an ACS principal diagnosis. Admission and discharge dates were analyzed to ensure that patients being transferred from one hospital to another were not being double counted. (If the discharge date from one facility was identical to the admission date at another facility, this was considered a transfer, and was counted as only one admission. However, the same beneficiary could have multiple admissions, as long as they did not meet the transfer criterion.)

MGD: The institutional file was searched for admissions with an ACS principal diagnosis. Transfers were handled as in the HCD.

Fee-for-Service Indicator Construction

The denominator file was used to identify beneficiaries who met the sample criteria to be counted in the denominator for this indicator—enrollment for all of calendar year 1994 and/or 1995. This yielded samples of 363,934 for 1994 and 329,116 for 1995. MedPAR inpatient admission files were then searched for hospitalizations with an ACS principal diagnosis code. Admission and discharge dates were checked to ensure that transferred patients were not double-counted.

Results

We present only the admission rate for all ACS conditions in the aggregate, rather than the rate for each individual condition, because of small sample sizes within the HPHC data. Rates were calculated for each of the two years and then averaged. Rates are presented as admissions per 1,000 beneficiaries.

ACS ADMISSION RATE		**HPHC**	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	71.9 (71.1, 72.7)	60.1 (55.7, 64.5)	44.4 (38.4, 50.4)
Age 65-74	49.8 (48.8, 50.8)	30.0 (25.5, 34.5)	30.7 (33.9, 39.5)
Age 75-84	85.2 (84.7, 86.7)	63.9 (54.6, 73.2)	50.6 (38.8, 62.4)
Age 85 and older	126.1 (122.7, 129.5)	182.9 (141.7, 224.1)	84.7 (50.5, 118.9)

The admission rates for fee-for-service beneficiaries are somewhat higher than those for the two divisions of HPHC. In previous studies, Mitchell (1994) found an ACS admission rate among the elderly of 71.8 per thousand beneficiaries in health professional shortage areas and 60.8 per thousand beneficiaries in nonshortage areas. Rosenbach and Khandker (1994) found a rate of 41 admissions per thousand beneficiaries. The reason for our somewhat higher rate is not obvious. However, it is consistent with previous work by Wennberg (1996) which found that the Boston area (where most of our beneficiaries reside) has very high rates of hospitalization for conditions such as pneumonia, COPD, and congestive heart failure, for which severity varies substantially across patients. He hypothesizes that this high admission rate is related to the high number of hospital beds per capita in the Boston area.

3.2.4 Rate of Pre-hospital Care for Ambulatory Care Sensitive Admissions

Definition

Of patients with an ambulatory care sensitive admission, the percentage with at least one physician visit during the previous 60 days.

Data Specifications

Denominator: Those with an ACS admission during the study period, for whom we had data for 60 days prior to admission. (The admission was March 2, 1994 or later.)

Numerator: Those with at least one (non ER, non-inpatient) physician visit in the 60 days prior to admission.

Some individuals have multiple ACS admissions (roughly 5 percent with an ACS admission have another during the year) so that the pre-admission period for one hospitalization may overlap with the post-admission period for another hospitalization. For each beneficiary, we used the first ACS admission in each calendar year (allowing for a 60 day pre-admission window in our data) in constructing this indicator.

HPHC Indicator Construction

HCD: The institutional file was searched for the first ACS admission for each beneficiary during each calendar year, allowing for 60 days of pre-hospitalization data. This yielded a sample of 311 admissions for 1994 and 310 admissions for 1995. For each admission, we then identified all physician claims for the 60 day period prior to admission. These were searched for claims indicating the beneficiary had a physician office visit during that period.

MGD: We followed the same process as in the HCD to identify ACS admissions, yielding a sample of 128 for 1994 and 153 for 1995. Claims were then searched for physician office or outpatient visits during the 60 days prior to admission.

Fee-for-Service Indicator Construction

Our file with ACS admissions was searched for the first admission for each beneficiary during each calendar year, allowing for 60 days of pre-hospitalization data. This yielded a sample of 16,778 admissions for 1994 and 22,577 admissions for 1995. For each admission, we then identified all physician claims for the 60 day period prior to admission. These were searched for claims indicating the beneficiary had a physician visit during that period occurring in an office or outpatient setting.

Results

The proportion of patients with an ambulatory visit prior to their first ACS hospitalization was calculated for each year and then averaged. The results were as follows:

ACS PRE-HOSPITAL CARE RATE		**HPHC**	
	Fee-For-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	80.3% (79.7, 80.9)	85.8% (81.7, 89.9)	85.3% (79.1, 91.5)
Age 65-74	79.1 (78.1, 80.1)	82.6 (76.2. 89.0)	85.0 (76.4, 93.6)
Age 75-84	81.6 (80.8, 82.4)	90.9 (86.0, 95.8)	86.3 (75.6, 87.0)
Age 85 and older	79.2 (78.0, 80.4)	82.8 (70.9, 94.7)	83.0 (60.8, 100.0)

Our sample sizes for both divisions of HPHC are quite small for this indicator. However, it appears for all three sectors that the proportion of patients receiving care prior to the ACS admission is quite high.

Outpatient care prior to an ACS admission is not an indicator that has been used in other studies. The indicator, as we have currently constructed it, simply measures whether the person had any physician visits in the 60 days prior to admission. To test the sensitivity of the indicator to this specification, we also constructed four alternatives: proportion of patients with a visit in the 30 days or 7 days prior to admission, and proportion with a visit in the 30 days or 7 days prior to admission excluding the day prior to admission. These results are presented below:

ACS PRE-HOSPITAL CARE ALTERNATIVE SPECIFICATIONS		HPHC	
	Fee-For-Service	Health Centers Division	Medical Groups Division
60 Days prior	80.3%	85.8%	85.3%
30 Days prior	68.0	76.1	61.0
7 Days prior	36.1	54.4	53.7
30 Days prior (exclude day before admission)	64.5	65.2	51.3
7 Days prior (exclude day before admission)	28.0	29.8	24.7

As would be expected, the proportion of patients with a visit decreases substantially when the window is shortened from 60 to 30 or 7 days prior to admission. More interesting

is the effect of excluding visits the day before admission. When comparing visit rates the 7 days before admission, fee-for-service (with a rate of 36 %) lags substantially behind both divisions of HPHC (with rates of 54%). However, when visits the day prior to admission are excluded, the fee-for-service visit rate at 28 percent is quite comparable to the 30 percent for the HCD and 25 percent for the MGD. (Since ACS admissions are not elective, we would not expect visits the day before admission to be for planned pre-testing. Thus, the difference in rates excluding the day before admission vs. including this day do not reflect philosophical differences in pre-stay testing).

3.2.5 Rate of Post-hospital Care for Ambulatory Care Sensitive Admissions

Definition

Of patients with an ambulatory care sensitive admission, the percentage with at least one physician visit during the 30 days following discharge.

Data Specifications

Denominator: Those with an ACS admission during the study period, who did not have a subsequent admission during the 30 days following the ACS discharge.

Numerator: Those with at least one (non ER, non-inpatient) physician visit in the 30 days following discharge.

HPHC Indicator Construction

HCD: The institutional file was searched for ACS admissions for each beneficiary during each calendar year, allowing for 30 days of post-discharge data. For each hospitalization we searched for another inpatient admission during the 30 days after discharge. This yielded a sample of 297 admissions for 1994 and 276 admissions for 1995. We then identified all physician claims for the 30 days after discharge. These were searched for claims indicating the beneficiary had a physician office visit during that period.

MGD: We followed the same process as in the HCD to identify ACS admissions and rehospitalizations, yielding a sample of 148 for 1994 and 140 for 1995. Claims were then searched for physician or outpatient visits during the 30 days following discharge.

Fee-for-Service Indicator Construction

Our file was searched for ACS admissions for each beneficiary during each calendar year, and patients with a rehospitalization within 30 days were removed from the sample. This yielded 13,895 admissions for 1994 and 18,249 admissions for 1995. For each admission, we then identified all physician claims for the 30 day period after discharge. These were searched for claims indicating the beneficiary had a physician visit during that period occurring in an office or outpatient setting.

Results

The proportion of patients with an ambulatory visit after their ACS hospitalization was calculated for each year and then averaged. The results were as follows:

ACS POST-HOSPITAL CARE RATE		HPHC	
	Fee-For-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	78.4% (77.8, 79.9)	81.8% (77.3, 86.3)	84.6% (78.5, 90.7)
Age 65-74	80.2 (79.1, 81.3)	87.8 (81.4, 94.2)	89.6 (81.7, 97.5)
Age 75-84	79.1 (78.2, 80.0)	83.3 (76.4, 90.2)	83.3 (72.1, 94.5)
Age 85 and older	73.8 (72.3, 75.3)	68.4 (54.1, 82.7)	79.3 (62.0, 96.6)

The rate of follow-up care was quite similar in all three sectors, ranging from 78.4 percent of fee-for-service patients to 84.6 percent of patients in the MGD. For all 3 sectors we dropped from the sample beneficiaries with a re-admission within 30 days of discharge. This led to a reduction of roughly 8 percent of the fee-for-service on a HCD samples. The MGD, with its smaller sample to start with, experienced a slightly greater attrition rate due to readmissions. This difference was not, however, statistically meaningful.

3.2.6 Anti-Hypertensive Follow-Up Rate

Definition

Percentage of beneficiaries with a prescription for an ACE inhibitor or Loop diuretic with at least one outpatient visit to a primary care provider or cardiologist during the eight months after the prescription was written.

Data Specifications

Denominator: Aged beneficiaries enrolled in the HCD for at least eight months following the date a prescription was written for an ACE inhibitor or loop diuretic.

Numerator: Those with at least one visit to internal medicine or cardiology during the eight months after receiving the prescription.

HPHC Indicator Construction

HCD: The AMRS was searched for patients with an appropriate prescription code during the period from January 1, 1993 to April 30, 1995. We then subset to patients for whom we had data for at least eight months following the date the prescription was written. (If a patient had more than one prescription, we used the first one in our sampling period.) This yielded a sample of 3,078 eligibles with an anti-hypertensive prescription.

Results

Below we present the rates of follow-up within eight months after receiving a prescription for an anti-hypertensive. We also present the rate of follow-up after six months to determine the effect of varying the length of the episode.

ANTI-HYPERTENSIVE FOLLOW-UP RATE	**Health Centers Division**	
	6 Months	8 Months
All eligibles	90.4% (89.3, 91.5)	93.0% (92.1, 93.9)
Age 65-74	89.6 (88.1, 91.1)	92.2 (90.9, 93.5)
Age 75-84	91.4 (89.8, 93.0)	93.8 (92.4, 95.2)
Age 85 and older	90.9 (87.3, 94.5)	94.9 (97.0, 100.0)

A very high proportion of patients in the HCD had a follow-up visit after receiving a prescription measured at both six and eight months. In addition, if telephone consultations are included, 98.2 percent of patients had follow-up within eight months of receiving the prescription. This indicator measures follow-up for those receiving a prescription, not for those actually having a prescription filled. Conceptually, it seems desirable to include all those receiving a prescription in the denominator, as we have done, since this is the indicator of those who need follow-up.

3.2.7 Anti-Depressant Follow-Up Rate

Definition

Percentage of beneficiaries with a prescription for a tricyclic or serotonin reuptake inhibitor with at least one outpatient visit to a primary care provider or mental health during the eight months after the prescription was written.

Data Specifications

Denominator: Aged beneficiaries enrolled in the HCD for at least eight months following the date a prescription was written for tricyclic or serotonin reuptake inhibitor.

Numerator: Those with at least one visit to internal medicine or mental health during the eight months after receiving the prescription.

HPHC Indicator Construction

HCD: The AMRS was searched for patients with an appropriate prescription code during the period January 1, 1993 though April 30, 1995. We then subset to patients for whom we had data for at least 8 months following the prescription. This yielded a sample of 1,121 with an anti-depressant prescription.

Results

Below we present the rate of follow-up within 8 months after receiving a prescription for an anti-depressant. We also present the rate of follow-up after 6 months to determine the effect of varying the length of the episode.

ANTI-DEPRESSANT FOLLOW-UP RATE	Health Centers Division	
	6 Months	8 Months
All eligibles	90.8% (89.1, 92.5)	93.2% (91.7, 94.7)
Age 65-74	92.6 (90.5, 94.7)	94.4 (92.5, 96.3)
Age 75-84	88.0 (84.7, 91.3)	91.2 (88.8, 94.4)
Age 85 and older	91.1 (84.5, 97.7)	91.9 (85.7, 98.3)

The follow-up rate for anti-depressants in the HCD is almost identical to that for patients receiving an anti-hypertensive prescription. Additionally, if telephone consultations are included along with the face-to-face visits, 97.7 percent of patients receive follow-up care within eight months after receiving the prescription. As with anti-hypertensives, this indicator measures those receiving the prescription, not those having it filled.

3.3 Diagnosis Specific Care

3.3.1 Rate of Post-hospital Follow-up for Myocardial Infarction

Definition

Percentage of beneficiaries hospitalized for MI with at least one primary care or cardiology visit within 60 days of discharge.

Data Specifications

Denominator: All aged beneficiaries continuously enrolled for at least 2 months in the study period following discharge for MI (ICD-9 = 410).

Numerator: Those with one or more visits with a primary care provider or cardiologist within 60 days of discharge.

HPHC Indicator Construction

Hospitalization files were searched for the first non-transfer discharge with an appropriate ICD-9 diagnosis code for each beneficiary during each calendar year. We then subset to patients who were alive and for whom we had data for at least 60 days following discharge. This yielded samples of 32 and 36 patients for the two years in the MGD, and 84 and 78 patients for the two years in the HCD.

HCD: The AMRS was searched for encounters indicating the beneficiary had a visit with internal medicine or cardiology in the 60 days following discharge.

MGD: Specialty is less well defined in the MGD than the HCD, due to the use of an Institutional -Interdivisional Care code that does not specify the specialty of the provider seen. We included visits with this code in determining whether the beneficiary had a visit within 60 days following discharge.

Fee-for-Service Indicator Construction

The MedPAR file was searched for the first non-transfer discharge for each beneficiary during each calendar year. The file was then subset to beneficiaries who were alive for at least 60 days in our sample following this discharge, yielding a sample of 2,994 for 1994 and 2,948 for 1995. Claims were searched for an outpatient or office visit with a specialty coding of internal medicine, cardiology, or multispecialty clinic or group practice during the 60 day period.

Results

The rates of follow-up within 60 days after discharge from a hospitalization for a myocardial infarction were calculated for each year and averaged. The results were as follows:

MI FOLLOW-UP RATE		HPHC	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	73.3% (71.7, 74.9)	90.7% (83.8, 97.6)	93.2% (83.8, 100)
Age 65-74	77.6 (75.3, 79.9)	94.3 (86.2, 100)	94.9 (82.8, 100)
Age 75-84	73.4 (70.9, 75.9)	92.3 (81.8, 100)	89.4 (66.1, 100)
Age 85 and older	60.2 (55.3, 65.1)	75.0 (38.8, 100)	100 (83.5, 100)

Both the HCD and the MGD had very small samples for this indicator. The proportion of the sample meeting the criterion to appear in our denominator (8 per thousand) is very consistent across the three groups and across the two years of data. This rate is consistent with findings by Hurst (1994) that the incidence rate of MI is 11 per thousand among the elderly, while 17 percent of those admitted die in the hospital (Federal Register, 1994) and roughly 25 percent of those admitted die within 90 days of discharge (Dayhoff and Cromwell, 1994). Given the small samples (and the resultant wide confidence intervals), it is difficult to draw any conclusions regarding performance in the two divisions of the HMO.

3.3.2 Rate of Post-hospital Follow-up for Depression

Definition

Percentage of beneficiaries hospitalized for depression with at least one primary care or mental health visit within 14 days of discharge.

Data Specifications

Denominator: All aged beneficiaries continuously enrolled for at least 3 months in the study period follow discharge for depression (ICD-9 = 296, 298.0, 300.4, 301.12, 309.0, 309.1, 311).

Numerator: Those with one or more visits with a primary care or mental health provider within 14 days of discharge.

HPHC Indicator Construction

HCD: Institutional files were searched for the first non-transfer discharge with an appropriate ICD-9 diagnostic code for each beneficiary during each calendar year. We then determined whether the individual had another hospitalization for depression within 14 days following this discharge. Those with another such hospitalization during this period were dropped from the sample; those without a subsequent hospitalization formed the denominator for the indicator. This resulted in samples of 12 and 17 for HCD for 1994 and 1995. The AMRS was then searched for a record indicating the patient had a visit with an internal medicine or mental health specialist during the 14 days following discharge.

MGD: Hospitalizations were identified in a manner analogous to the HCD, yielding samples of 12 and 5 for MGD for the two years. Outpatient visits were then searched for evidence the person had a visit during the 14 days following discharge. As with other indicators based on specialty, the MGD claims suffer from the use of an Institutional-Interdivisional Care code that does not specify level of profession or specialty of provider seen. We included visits with this code in constructing the indicator, but it doubtless is less specific than HCD.

Fee-for-Service Indicator Construction

Hospitalization files were searched for the first non-transfer discharge with an appropriate ICD-9 diagnostic code for each beneficiary during each calendar year. We then determined whether the individual had another hospitalization for depression within 14 days following this discharge. Those with another hospitalization were dropped from the sample. The resulting samples were 963 for 1994 and 895 for 1995.

Results

The rates of follow-up within 14 days after discharge from a hospitalization for depression were calculated for each year and averaged. The results were as follows:

DEPRESSION FOLLOW-UP RATE		HPHC	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	65.8% (62.7, 68.9)	64.5% (37.3, 92.2)	80.3% (52.6, 100.0)
Age 65-74	68.0 (63.1, 72.9)	79.1 (51.0, 100.0)	87.5 (61.6, 100.0)
Age 75-84	64.8 (60.2, 69.4)	53.4 (0, 100.0)	75.0 (16.5, 100.0)
Age 85 and older	63.0 (53.5, 72.5)	——	——

As with other indicators based on a hospitalization, creating the denominator for this indicator (persons hospitalized with a principal diagnosis of depression) is straightforward. In calculating the numerator, both fee-for-service and MGD data suffer from the coding of "groups" which contain unidentified or multiple specialties. Because of the prevalence of visits with this specialty code, and the appearance that much of what took place during these visits was appropriate follow-up care, we included them in the numerators of our measures. This practice would tend to bias these results upward relative to the HCD, in which specialty can be accurately defined and is narrowly limited to internal medicine and mental health specialists. A far more confounding problem in comparing the rates is the very small sample sizes for both divisions of the HMO which results in very imprecise estimates (note the wide confidence intervals for the HMO measures). The MGD had a total of 17 hospitalizations for depression across the 2 years and the HCD had 29.

3.3.3 Rate of Follow-up for Abnormal Mammogram

Definition

Percentage of female beneficiaries with an abnormal mammogram who receive follow-up repeat mammogram, ultrasound, biopsy, or surgery within 15 days.

Data Specifications

Denominator: Female aged beneficiaries continuously enrolled for at least two months in the study period following an abnormal mammogram.

Numerator: Those with repeat mammogram, ultrasound of breast, biopsy of breast lesion, or other surgical procedure of the breast within 15 days of abnormal result [AMRS = Y598 (breast biopsy), Y215 (excision of breast lump), Y384 (excision of breast mass), T362 (fine needle aspiration: superficial tissue), T363 (fine needle aspiration: deep tissue), R200 (biopsy performed), T388 (aspirate cyst: breast), T391 (breast lump biopsy: needle directed), T392 (breast lump biopsy: incisional), T393 (breast lump biopsy: excisional), R035 (mammogram), R340 (mammogram-unilateral), R341 (mammogram-bilateral), R342 (localize breast nodule or calcif. pre-op w/ marker), R261(ultrasonography), TR188 (ultrasound-breast), TR361 (cyst aspiration-ultrasound guidance), TR362 (needle biopsy-ultrasound guidance)].

HPHC Indicator Construction

HCD: The Radiology Information System (RIS) was used to identify women with abnormal mammograms between June 1, 1994 and December 31, 1995. The RIS is a microcomputer-based dataset kept by the radiology department to keep track of all test results and to codify the readings of x-rays, i.e., normal, abnormal. The dataset was not created until June 1994, so our sample is restricted to cases after that date. We then subset to those with at least two months of continuous enrollment after the date of the abnormal mammogram, yielding a sample of 76 women. The AMRS was then searched for follow-up procedure and test codes.

Results

The proportion of patients undergoing a follow-up within 15, 30, 45 and 60 days of the abnormal mammogram was as follows:

ABNORMAL MAMMOGRAM FOLLOW-UP RATE	Health Centers Division
15 days	46.1% (34.2, 58.0)
30 days	64.5 (53.1, 75.9)
45 days	77.6 (67.6, 87.6)
60 days	90.8 (84.0, 98.2)

3.4 Specialty Referral Care

3.4.1 Population-Based Procedure Rates

The construction and interpretation of our three population-based procedure rates—lens replacement, hip and knee replacement, and revascularization surgery—are all quite similar. Hence, we describe each of them in this section.

Population-Based Rate of Lens Replacement

Definition

Rate of lens replacement per thousand beneficiaries during a 12 month period.

Data Specifications

Denominator: Aged beneficiaries continuously enrolled for at least 12 months during the study period.

Numerator: The number of lens replacement surgeries (CPT = 66830-66986).

Population-Based Rate of Hip and Knee Replacement

Definition

Rate of hip and knee replacement per thousand beneficiaries during a 12 month period.

Data Specifications

Denominator: Aged beneficiaries continuously enrolled for at least 12 months during the study period.

Numerator: Number of admissions for hip replacements (ICD-9 = 81.51, 81.53) and knee replacements (ICD-9 = 81.54, 81.55).

Population-Based Rate of Coronary Revascularization

Definition

Rate of coronary revascularization procedures per thousand beneficiaries during a 12-month period.

Data Specifications

Denominator: All aged beneficiaries enrolled continuously for a twelve month period.

Numerator: Admissions for a coronary revascularization procedure (bypass or angioplasty) (ICD-9 = 36.01, 36.02, 36.03, 36.04, 36.05, 36.09, 36.10-36.19, 36.2).

HPHC Indicator Construction

The MUPS enrollment file was used to identify all aged beneficiaries enrolled in the plan for either all of calendar year 1994 and/or all of calendar year 1995. This yielded a sample of 9,457 and 9,287 beneficiaries for the two years in the HCD, and a sample of 4,614 and 4,454 beneficiaries for the two years in the MGD.

HCD: The institutional file was searched for claims with an appropriate CPT-4 code. (Data on all care outside the Health Centers is found in the institutional file.) We then determined the proportion of beneficiaries receiving one of the designated procedures. An individual was coded either as "0" not receiving a procedure or "1" receiving a procedure (beneficiaries receiving two lens replacements are coded the same as those receiving only one).

MGD: The institutional file was searched for claims with an appropriate CPT-4 code in a manner analogous to that used in the HCD.

Fee-for-Service Indicator Construction

To parallel the approach taken by HPHC, we identified all beneficiaries meeting the sample eligibility criteria for all of calendar year 1994 and/or for all of calendar year 1995, yielding samples of 363,934 and 329,116 beneficiaries for the two years.

Since almost all lens replacements are performed on an outpatient basis, these operations were identified in the fee-for-service data using physician claims. The physician/supplier file was searched for claims indicating a lens replacement. Modifiers and type of provider were then used to identify the actual surgeon's claims (as opposed to claims for pre- and post- operative care, or a surgical facility bill).

For hip and knee replacement and revascularization rates, rates were constructed in a manner analogous to that used by HPHC.

Results

Procedure rates per one thousand eligibles, averaged across 1994-95, are presented below for each of our procedure groups.

LENS REPLACEMENT		HPHC	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	37.9 (37.3, 38.5)	32.5 (29.1, 35.9)	16.6 (12.6, 20.6)
Age 65-74	27.1 (26.3, 27.9)	19.4 (15.8, 23.0)	10.3 (6.3, 14.3)
Age 75-84	49.9 (48.7, 51.1)	39.6 (32.1, 47.1)	24.1 (15.7, 32.5)
Age 85 and older	44.6 (42.5, 46.7)	66.1 (39.2, 93.0)	39.2 (15.0, 63.4)

HIP AND KNEE REPLACEMENT		HPHC	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	6.8 (6.5, 7.1)	5.9 (4.3, 7.5)	7.7 (4.9, 10.5)
Age 65-74	7.0 (6.6, 7.4)	5.4 (3.3, 7.5)	7.5 (4.0, 13.0)
Age 75-84	7.3 (6.8, 7.8)	6.7 (3.5, 9.9)	8.6 (3.4, 13.8)
Age 85 and older	3.4 (2.8, 4.0)	5.4 (0, 14.1)	5.4 (0, 15.6)

REVASCULARIZATION PROCEDURES		HPHC	
	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	8.6 (8.3, 8.9)	7.6 (5.7, 9.5)	4.1 (1.7, 6.5)
Age 65-74	10.7 (10.2, 11.2)	7.7 (5.4, 10.0)	6.2 (3.0, 9.4)
Age 75-84	7.8 (7.3, 8.3)	9.2 (5.5, 12.9)	2.5 (0, 5.5)
Age 85 and older	1.8 (1.4, 2.2)	1.3 (0, 5.4)	0.0 (0, 2.1)

We would expect each of our procedures to be accurately coded in each of the three data sets, given their relatively expensive, "major procedure" nature. However, the small sample sizes for the HCD and MGD make it difficult to interpret the differences in these rates. Interpretation is also confounded by lack of a clear pattern—for instance the MGD has the lowest rate of revascularization procedures, but the highest rate of hip and knee replacement. In addition, even where procedure rates were significantly different across the three groups, with no appropriate benchmark it is impossible to determine whether a difference indicated overutilization in one sector or underutilization in another.

3.4.2 Rate of Breast Cancer Oncology Follow-Up

Definition

Percentage of female beneficiaries with at least one oncology or general surgery visit in the six months following an initial diagnosis of breast cancer.

Data Specifications

Denominator: All female beneficiaries continuously enrolled for at least six months following an initial diagnosis of breast cancer.

Numerator: Those with a first diagnosis of breast cancer (DH101, DH102) during the study period.

HPHC Indicator Construction

HCD: The AMRS has a function that allows it to search a medical record and indicate which occurrence of a given diagnosis code is the first occurrence. This feature was used to identify women whose first appearance of a breast cancer diagnosis code occurred during the period January 1, 1993 to December 31, 1995. This sample was subset to those with six months of continuous enrollment after the date of diagnosis. This yielded a sample of 162 women.

Results

The proportion of women who had a follow-up oncology or surgery visit during the six months after a breast cancer diagnosis was:

BREAST CANCER FOLLOW-UP RATE	Health Centers Division
All eligibles	71.0% (63.7, 78.3)
Age 65-74	76.7 (67.4, 86.0)
Age 75-84	70.9 (58.0, 83.8)
Age 85 and older	41.2 (14.9, 67.5)

Identification of "first mention" of diagnosis in AMRS does not necessarily identify initial diagnosis of breast cancer, but rather the first entry of the code for breast cancer into the system. Therefore, it can reflect not only incident disease, but also the first entry in a record for a new member with a history of breast cancer in years past. For example, if a 75 year old woman joined the HCD and reported during her initial visit that she had been treated for breast cancer 10 years earlier, a breast cancer diagnosis would be entered into the data. The search algorithm would identify the first occurrence of the diagnosis, but treatment for the condition would not necessarily be required. Given that 29 percent of women have no oncology/surgery visit, and 22 percent have no ambulatory encounters in the following six months despite continuous enrollment, this would merit further investigation.

3.5 Primary Care

3.5.1 Rate of New Enrollees with a Visit

Definition

Percentage of new enrollees with at least one visit during the first two months of enrollment.

Data Specifications

Denominator: All newly enrolled aged beneficiaries with at least three months of continuous enrollment in the study period.

Numerator: Those with at least one face to face visit during the first two months of enrollment.

HPHC Indicator Construction

For each division, a sample was drawn of 750 new members who joined at age 65 or over in 1995 and were subsequently enrolled for at least 3 months.

HCD: The AMRS was searched for a face to face visit during the first 60 days of membership.

MGD: Claims were searched for a CPT code indicating an evaluation and management visit during the first 60 days of membership.

Results

The proportion of new enrollees with a visit within 60 days was as follows:

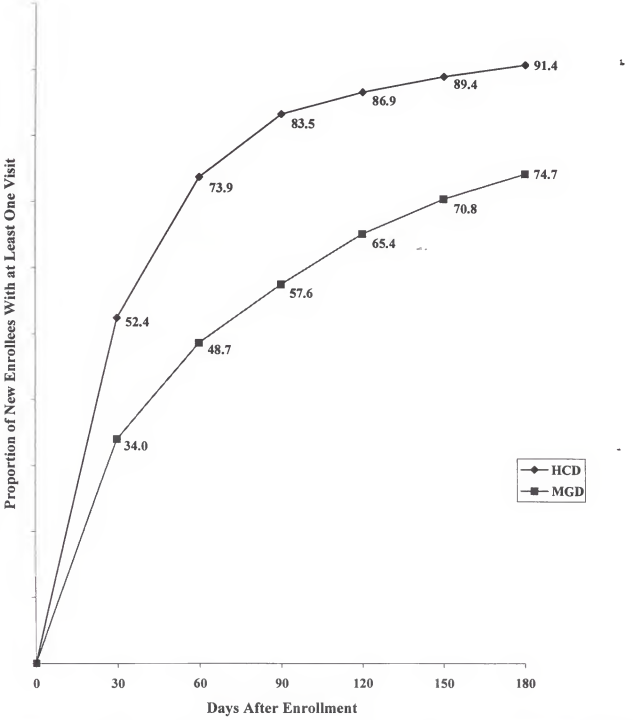
RATE OF NEW ENROLLEES WITH A VISIT

	Health Centers Division	Medical Groups Division
All eligibles	73.9% (70.7, 77.1)	48.7% (45.1, 52.3)
Age 65-74	74.6 (70.5, 78.7)	44.1 (39.3, 48.9)
Age 75-84	72.8 (66.7, 78.9)	53.6 (47.2, 60.0)
Age 85 and older	72.6 (60.7, 84.5)	61.3 (48.4, 74.2)

The proportion of new enrollees with a visit in 60 days is substantially higher in the HCD than the MGD (although the differences narrow among the older age groupings). To determine whether the difference between the divisions disappeared with a larger window, we also determined the proportion of beneficiaries with a visit at 30 day intervals up to 180 days. These results are presented in Figure 3-1.

Figure 3-1

Proportion of New Enrollees With a Visit at 30 Day Intervals After Enrollment



RATE OF NEW ENROLLEES WITH A VISIT	Health Centers Division	Medical Groups Division
30 Days	52.4%	34.0%
60 Days	73.9%	48.7%
90 Days	83.5%	57.6%
120 Days	86.9%	65.4%
150 Days	89.4%	70.8%
180 Days	91.4%	74.7%

Two factors likely contribute to the higher visit rate for HCD at every period. First, HCD has implemented a more comprehensive system for screening and intake of new Medicare beneficiaries to ensure that these members are seen in a timely manner. Second, MGD members (unlike the HCD) may be changing insurers (for example, moving from fee-for-service to HPHC) but remaining with the same physician. Thus, although new HPHC enrollees, they would not be new to the group practice, and would not need an "initial" evaluation examination. Without additional case-study work or beneficiary interviews, it is impossible to determine which is the more prevalent factor.

3.5.2 Rate of Beneficiaries with a Visit

Definition

Percentage of beneficiaries with at least one visit with a primary care physician or specialist during a 12 month period.

Data Specifications

Denominator: All aged beneficiaries continuously enrolled for at least 12 months in the study period.

Numerator: Those with at least one visit to a primary care physician or specialist, excluding optometry/ophthalmology.[6]

HPHC Indicator Construction

For each division of HPHC, a random sample of 500 beneficiaries was drawn from those continuously enrolled for all of 1995 using the enrollment file.

HCD: The AMRS was searched for encounters indicating the beneficiary had a visit during the calendar year.

MGD: Claims were searched for CPT-4 codes indicating the beneficiary had an evaluation and management visit during the calendar year

[6] Routine eye exams for prescribing glasses are not covered under fee-for-service Medicare. Hence, we exclude this specialty from the analysis since the managed care and fee-for-service benefits are very different.

Fee-for-Service Indicator Construction

The denominator file was used to identify beneficiaries who were enrolled for all of calendar year 1995. This yielded a sample of 325,984 beneficiaries. Physician/supplier records were then searched for a CPT-4 code indicating the beneficiary had an evaluation and management visit during the calendar year.

Result

For each group, we calculated the proportion of beneficiaries with at least one visit during the calendar year. The results are as follows:

RATE OF BENEFICIARIES WITH A VISIT

	Fee-for-Service	Health Centers Division	Medical Groups Division
All eligibles (age adjusted)	88.4% (88.3, 88.5)	93.9% (91.7, 96.1)	90.9% (88.3, 93.5)
Age 65-74	86.0 (85.8, 86.2)	95.0 (92.3, 97.7)	89.7 (85.8, 93.6)
Age 75-84	90.6 (90.4, 90.8)	91.6 (87.2, 96.0)	92.7 (88.6, 96.8)
Age 85 and older	91.4 (91.1, 91.7)	97.6 (91.7, 100.0)	90.0 (81.6, 98.4)

Annual visit rates for fee-for-service and the two divisions of HPHC are all quite similar. All are also noticeably higher than the 76.9 percent visit rate found by PPRC (1995).

The difference may result form PPRC's use of a national sample, while our fee-for-service sample is primarily in the Boston metropolitan area.

3.5.3 Continuity of Care Index

Definition

Proportion of visits per patient for primary care that are with the patient's primary care physician.

Data Specifications

Denominator: All visits for primary care for aged beneficiaries continuously enrolled for at least 12 months in the study period.

Numerator: Visits with the patient's primary care physician.

HPHC Indicator Construction

HCD: A sample of 500 aged beneficiaries continuously enrolled for all of 1995 was randomly selected from the enrollment file. Then, the AMRS was used to identify visits with internal medicine during the year, yielding a sample of 464 patients with at least one visit, and a sample of 393 patients with more than one visit. (Since patients with one visit, by definition have a continuity index of 100%, only those two or more visits were used for constructing the indicator.) For each beneficiary, the most frequent provider was determined using the provider code and that individual was designated as the primary care provider. The

count of number of visits with that provider and total number of visits to internal medicine was constructed for each beneficiary.

Results

We calculated the proportion of primary care visits each beneficiary had with the primary care physician. The average proportions were:

CONTINUITY OF CARE INDEX	
	Health Centers Division
All eligibles	71.3%
Age 65-74	69.1
Age 75-84	73.5
Age 85 and older	76.2

The average proportion of internal medicine visits with the primary care provider (for eligibles having more than one visit) was just over 70 percent. This proportion did not vary substantially across our three age groups. This indicator was constructed only for the HCD, since the specialty coding is far superior in these data sets than in the MGD or fee-for-service data. In the HCD, "primary care" visits can be identified much more accurately than in the other sectors.

3.6 Analysis of Disenrollees

The measures reported above capture utilization experience for patients with a wide range of diagnoses receiving a wide range of services. However, as is necessary in any limited list of indicators, we cannot cover all conditions for which patients might seek care or treatments they might receive. Thus, it is desirable to also develop some broader indicators of patient's experiences in the health care system, that, although less firmly rooted in clinical standards of care, may reflect whether patients feel they are receiving "timely and appropriate" care.

Unlike most managed care enrollees, who may be quite restricted in their ability to leave an HMO and acquire other health insurance, Medicare enrollees can switch to fee-for-service (or another managed care plan) with only 30 days notice. Thus, the characteristics of beneficiaries who disenroll, and their experience both while in the health plan and immediately after leaving, may provide some evidence of dissatisfaction with the care being received. For example, patients with chronic high cost conditions may disenroll as a response to perceived barriers to care. High levels of utilization soon after enrollment in the fee-for-service system may reflect "pent-up demand," especially for high-cost procedures or specialty care.

To explore these issues, our analysis of disenrollees contains three components: (1) calculation of disenrollment rates, (2) comparison of characteristics of disenrollees with enrollees, and (3) disenrollees' patterns of fee-for-service care after leaving the HMO. Although our analysis of components (1) and (2) comes from HPHC data, an alternative for

calculating disenrollment rates and comparing demographic and enrollment charactistics of disenrollees and enrollees would be to use enrollment data maintained by HCFA. Comparison of utilization while in the HMO requires use of the HMO data files.

3.6.1 Disenrollment Rates

Definition

Percentage of beneficiaries disenrolling from HPHC (excluding those who died) during the calendar year.

Data Specifications

Denominator: Aged beneficiaries enrolled in HPHC for any part of the calendar year.

Numerator: Those disenrolling from HPHC (excluding those who died).

Ideally, we would like to measure the number of "voluntary" disenrollees, excluding those who "involuntarily" disenrolled due to death or relocation. Although we have no information on relocation, HPHC does have an accurate count of disenrollees who died.[7] Thus, deaths are excluded from the numerator. This approach differs from HEDIS 3.0, which counts deaths as disenrollees. This approach also differs from HEDIS in that we count everyone ever enrolled during the year in the denominator, rather than comparing enrollments at the endpoints of two years. Thus, our approach would count beneficiaries

[7]To check the validity of the HPHC death variable, we compared HPHC membership end date and death information against HCFA's denominator file. The HPHC death variable was found to be accurate for 98 percent of disenrollees.

who enrolled and left during the course of a year (for example, enrolled in April, left in August) in the numerator and denominator, while HEDIS would not.

Results

Disenrollment rates for the two divisions, calculated using HPHC administrative enrollment files for 1994 and 1995, are as follows:

DISENROLLMENT RATE		
	Health Centers Division	Medical Groups Division
1994	3.2%	3.4%
1995	2.8%	3.8%

These rates are substantially lower than the industry average of 9.2 percent per year (excluding deaths) reported in the Public Sector Contracting Report (1997), the 14 percent found by Riley, *et al.* (1997) for Medicare beneficiaries or the 17 percent rate reported by the GAO for selected markets (1996). However, it should be noted that disenrollment rates are sensitive to the definition of who was ever enrolled and who disenrolled. For example, if beneficiaries who cancelled applications before the effective enrollment date and retroactive disenrollment date included, the disenrollment rate will be higher that if these beneficiaries are excluded (GAO, 1996).

3.6.2 Comparison of Enrollees and Disenrollees

Demographic Characteristics

Below we compare the mean age and percentage who are female for those enrolled[8] for any part of 1994 or 1995 with those disenrolling during those two years.

	Health Centers Division		Medical Groups Division	
	Ever Enrolled	Disenrolled	Ever Enrolled	Disenrolled
Sample Size	12,838	664	8,909	492
Percent Female	59%	57%	57%	62%
Mean Age	72	73*	72	74*

The proportion of females disenrolling did not differ significantly from the overall HPHC Medicare enrollment for either division. Disenrollees were significantly older than the average Medicare enrollee (as designated by the asterisk), but only by one or two years on average.

Length of Enrollment

For each of the two divisions of HPHC, we calculated (a) mean length of enrollment for those disenrolling (and not believed to be dead), and (b) mean length of enrollment for those enrolled as of the end of the calendar year. These results are presented in Table 3-2.

For three of the four groups, disenrollees had significantly shorter lengths of membership in HPHC than did those enrolled at the end of the year. However, average

[8]Those ever enrolled includes the sample that eventually disenrolled.

Table 3-2

Mean Length of Enrollment, For Disenrollees and Those Enrolled at the End of the Calendar Year

	Sample Size	Mean Length of Enrollment (months)
HCD 1994		
Enrolled	10,064	81.3
Disenrolled	333	61.0 *
MGD 1994		
Enrolled	4,923	68.9
Disenrolled	174	64.9 *
HCD 1995		
Enrolled	11,650	77.6
Disenrolled	331	52.9 *
MGD 1995		
Enrolled	8,132	47.5
Disenrolled	318	46.4

* Indicates statistical difference at the 5 percent level.

NOTE: The mean length of enrollment in 1995 is substantially lower than in 1994 for both divisions because of the large influx of new Medicare members during 1995.

SOURCE: HPHC enrollment file.

length of membership is quite long for each of the disenrollee groups, ranging roughly from 4 to 6 years.

Disenrollee Care while in HPHC

For disenrollees who had been members of the plan for at least one year prior to leaving (and who did not die), we extracted data on outpatient utilization for the twelve months prior to disenrolling. Disenrollees were pooled for the two years 1994 and 1995 to increase sample sizes. For comparison, we selected random samples of beneficiaries enrolled for all of 1995 and extracted their outpatient utilization as well.

Table 3-3 presents comparisons of enrollee and disenrollee inpatient utilization. Disenrollees are significantly more likely to have been hospitalized during the 12 months than those who remain enrolled, both in the HCD and the MGD. Among those with a hospitalization, disenrollees had a higher mean number of stays in both divisions.

Similar data on outpatient utilization is reported in Table 3-4. In both the HCD and MGD, enrollees and disenrollees were very likely to have an outpatient contact during the 12 month period. In the HCD, enrollees were slightly (and significantly) more likely to have had a face-to-face visit (95.4%) than were disenrollees (91.9%). In both divisions, disenrollees are lower utilizers of outpatient physician services, with fewer mean, median, and tenth percentile values for each type of contact than those still enrolled.

These results are difficult to interpret, given the conflicting results for inpatient and outpatient utilization. The higher rates of hospitalizations are consistent with the results of Morgan *et al* (1997), who found that sicker beneficiaries are more likely to disenroll than

Table 3-3

Inpatient Utilization for Disenrollees and Enrollees During a 12 Month Period During Which They Were Enrolled in HPHC

	Health Centers Division	
	Enrollees	Disenrollees
Percent with a Hospitalization	13.0 %	17.7 % *
Mean Number of Hospitalizations (For those Hospitalized)	1.3	3.2 *

	Medical Groups Division	
	Enrollees	Disenrollees
Percent with a Hospitalization	12.6 %	21.5 % *
Mean Number of Hospitalizations (For those Hospitalized)	1.2	1.5 *

NOTE: Data for disenrollees covers the 12-month period prior to disenrollment from HPHC.
Data for enrollees covers a 12-month enrollment period in HPHC.

* Indicates statistical difference at the 5 percent level.

SOURCE: HPHC inpatient files.

Table 3-4

Outpatient Utilization for Disenrollees and Enrollees During a 12 Month Period During Which They Were Enrolled in HPHC

	Health Centers Division	
	Enrollees	Disenrollees
Percent with a Visit	95.4 %	91.9 % *
Mean Number of Visits	12	9 *
Median Number of Visits	9	7
Tenth percentile Number of Visits	3	1

	Medical Groups Division	
	Enrollees	Disenrollees
Percent with a Claim	94.6 %	94.4 %
Mean Number of Claims	36	15 *
Median Number of Claims	23	10
Tenth percentile Number of Claims	6	3

NOTE: Data for disenrollees covers the 12-month period prior to disenrollment from HPHC.
Data for enrollees covers a 12-month enrollment period in HPHC.

* Indicates statistical difference at the 5 percent level.

SOURCE: HPHC encounter and claims outpatient files.

their healthier counterparts. Given this result, we would have expected to also see higher outpatient utilization for disenrollees. The disenrollees' lower outpatient utilization could be indicative of problems accessing outpatient care or could be a function of high-utilizers self-selection into (and continued enrollment in) managed care because of the convenience and low out-of-pocket expenses.

3.6.3 Disenrollee Care after Leaving HPHC

In addition to the analysis of experience while in the plan, we were also interested in care received by disenrollees after leaving HPHC. For this analysis, we constructed two comparison groups: (1) beneficiaries never in managed care during our study period, (2) beneficiaries in fee-for-service who eventually enrolled in managed care. The first group represent the "typical" beneficiaries, most of whom remain in fee-for-service. The second group may be more similar to disenrollees, who at one point thought they would prefer managed care.

Sample Selection

Two files maintained by HPHC were used in creating the sample of beneficiaries for the analysis of disenrollee care after leaving the HMO. One file contained a "Plan Record Number" along with member date of birth, sex, date membership ended and whether or not the member was believed to have disenrolled because of death. A second file contained the member's Medicare HICNO. These two files were merged, and the resulting file was

matched against HCFA's denominator file which provides demographic and enrollment data on Medicare beneficiaries.

Of the 901 beneficiaries disenrolling during the period December 31, 1993 to September 30, 1995 who were believed to still be alive by HPHC, 84 percent (758 beneficiaries) were matched to data on the denominator file. (Disenrollees that did not match to the denominator most likely moved out of our study area, which covered Massachusetts, New Hampshire, Rhode Island, and Vermont.)[9] We then subset to members for whom we had at least 3 months of fee-for-service data in our study period, yielding a sample of 373 disenrollees. (The demographic distribution of these disenrollees is shown in table 3-5). Of the remaining disenrollees, 364 were in managed care for at least one month of the three following disenrollment, and 21 died within 3 months of disenrolling. (Of those in managed care, two re-enrolled in HPHC the day after initial disenrollment—no others returned to this plan.)

Two randomly selected comparison groups of 1,000 beneficiaries each were then drawn from the denominator file. The first consisted of 1,000 people who were aged Medicare beneficiaries during the entire 1994-95 period, but did not belong to a managed care group at any time during that period. The second consisted of 1,000 people who were aged Medicare beneficiaries who joined an HMO for whom we had at least 3 months of fee-for-service data in our study period *before* they entered managed care. All members of the

[9]Although the denominator file contains a 100 percent sample of beneficiaries, the "finder file" used in identifying beneficiaries for our analysis contained only these states.

comparison group were required to reside in the HPHC catchment area, defined by zip codes, as of January 1994.

Because of concerns that medical utilization might vary seasonally, we determined from the HPHC sample the proportion of members disenrolling during each month of the study, and drew our comparison samples accordingly. That is, we drew a total of 22 samples for each comparison group, corresponding to disenrollees from the plan for the 22 months from the end of December, 1993 to the end of September, 1995. (The 22 samples contained a total of 1,000 beneficiaries.) For example, 3.7 percent of the HPHC disenrollees left the plan December 31, 1993. The follow-up period for these beneficiaries thus becomes January - March, 1994. We then drew data for 3.7 percent of the "never in managed care group" during the period January - March, 1994. (The 37 beneficiaries were selected randomly.) For the "about to join managed care group" we randomly selected 37 beneficiaries who joined managed care in April 1994, thus making their three months in the study January - March, 1994. Beneficiaries in the comparison groups were drawn without replacement so the same individual could not be in the sample twice.

Table 3-5 compares the age and gender distributions for disenrollees to the two comparison groups. The age distribution for the never in managed care group differs significantly from the HPHC disenrollees, with more disenrollees being in the younger age groupings. The age distribution for those about to enter managed care does not differ from the HPHC disenrollees. Neither group differs from the disenrollees in terms of gender distribution.

Table 3-5

Samples for Disenrollment Analysis

	HPHC Disenrollees	Those Never Enrolled in Managed Care	Those about to Enroll in Managed Care
Sample Size	373	1,000	1,000
Age 65-74	54.4 %	42.0 %	52.1 %
Age 75-84	34.3	42.9	39.4
Age 85 and older	11.2	15.1	8.5
Gender			
Female	54.9	60.1	58.3
Male	45.1	39.9	41.7

NOTE: The age distribution of those never enrolled in managed care is statistically different than that of the HPHC Disenrollees at the 5% level. Distributions by gender are not significantly different.

SOURCE: HPHC Enrollment File; random sample drawn from HCFA's Denominator file.

Utilization Measures

Given the relatively small sample of disenrollees, we did not have the statistical power to look for differences in utilization for individual services. For example, we did not try to determine whether the rates of elective procedures such as cataract surgery or major joint replacement were different across the three analytic samples. Instead, we used broad categories of utilization. For inpatient care, we examined the proportion of the sample with a hospitalization, mean number of hospitalizations (for those with at least one), Medicare Part A payments per user, and Medicare Part A payments per eligible.

For physician/supplier care, we aggregated claims using BETOS groupings (Berenson and Holahan, 1990) into six classes: all physician/supplier services, visits (excluding mental health), mental health visits, procedures, imaging services, and tests. We then calculated average allowed charges per beneficiary, proportion of beneficiaries with positive allowed charges, and average allowed charges per user. Disaggregating average allowed charges per beneficiary into its two components allows us to investigate whether differences arise from differences in the number of beneficiaries receiving the service, or from differences in the intensity of services received. (Allowed charges, rather than a count such as number of visits or number of tests, were used as a measure of service intensity so that more costly, higher intensity services would be weighted more heavily than lower cost services. For example, one MRI counts much more heavily than one chest x-ray in the imaging category using allowed charges, whereas counts of procedures would weight both equally.) We chose a three month follow-up because we wanted a period sufficiently long for "pent up" demand

to be observable but brief enough that unrelated new conditions developing after disenrollment would not be included.

Results

Table 3-6 presents results of hospital utilization for a three-month period for each of the three analytic groups. Payments per eligible and the proportion of eligibles with a hospitalization are slightly higher for those never in managed care than for HPHC disenrollees, who in turn have slightly higher values than those about to enter managed care. However, none of the differences in utilization measures are statistically significant across the three analytic groups. This result differs from that of Morgan *et al* (1997) who found that disenrollees had significantly greater inpatient utilization following disenrollment than fee-for-service Medicare beneficiaries. The difference may result from our smaller sample size and resulting lower statistical power. However, Morgan's sample, drawn from the southern Florida area which has a very high disenrollment rate (GAO, 1996), may not generalize to all managed care organizations and to all markets.

Table 3-7 presents results of physician/supplier utilization for a three-month period for the same three analytic groups. HPHC disenrollees have higher physician charges per eligible ($416.86) than those about to enroll in managed care ($219.59). The difference is statistically significant, as is the difference between number of eligibles receiving a physician supplier service (77.1% for HPHC disenrollees vs. 68.3% for those about to enroll) and allowed charges per user ($540.67 for HPHC disenrollees vs. $321.51 for those about to

Table 3-6

Hospital Utilization for a 3 Month Period

		Comparison Group	
	HPHC Disenrollees	Those Never Enrolled in Managed Care	Those About to Enroll in Managed Care
Payments per Eligible	$372.14	$388.89	$360.68
Proportion of eligibles who are users	4.3%	5.0%	2.9%
Average hospitalizations per user	1.2	1.4	1.3
Payments per user	$8,654.42	$7,777.90	$12,437.24

NOTES:
1) Results are age-sex adjusted.
2) No statistically significant differences exist between HPHC disenrollees and the other groups.

SOURCE: MedPAR files, 1994 and 1995.

Part B Utilization During a 3 Month Period for Disenrollees, Those Always in Fee-For-Service, and Those About to Enroll in Managed Care

	HPHC Disenrollees	Those Never Enrolled in Managed Care	Those About To Enroll in Managed Care
All Physician/Supplier Services			
Allowed charges per eligible	$416.86	$349.21	$219.59 *
Proportion of eligibles using service	77.1%	74.3%	68.3% *
Allowed charges per user	$540.67	$470.06	$321.51 *
Physician Visits			
Allowed charges per eligible	$133.08	$143.70	$86.87 *
Proportion of eligibles using service	71.7%	70.4%	62.9% *
Allowed charges per user	$185.61	$191.54	$138.11 *
Procedures			
Allowed charges per eligible	$110.46	$84.99	$63.34 *
Proportion of eligibles using service	23.9%	26.1%	18.9%
Allowed charges per user	$462.18	$325.73	$335.13
Tests			
Allowed charges per eligible	$37.80	$33.98	$23.34 *
Proportion of eligibles using service	46.8%	44.9%	34.3% *
Allowed charges per user	$80.76	$75.64	$68.06
Imaging Studies			
Allowed charges per eligible	$35.35	$31.58	$25.87
Proportion of eligibles using service	25.5%	27.3%	20.0%
Allowed charges per user	$138.64	$115.78	$129.37
Mental Health Visits			
Allowed charges per eligible	$18.00	$8.48 *	$2.13 *
Proportion of eligibles using service	6.8%	3.3% *	1.8% *
Allowed charges per user	$264.73	$257.34	$118.61 *

NOTES:
1) All results are age-sex standardized.
2) * indicates statistical difference from disenrollees at the 5 percent level.

SOURCE: National Claims History Physician/Supplier files, 1994 and 1995.

enroll). Utilization measures for HPHC disenrollees were not significantly different from those never enrolled in managed care.

The results for physician visits, procedures, and tests are similar, with HPHC disenrollees having significantly higher utilization than those about to enroll. There are no significant differences among the imaging studies category.

The only category for which HPHC disenrollees have significantly higher utilization than both those never enrolled and those about to enroll is for mental health visits. Allowed charges per eligible are twice as high ($18.00 vs. $8.48) for the disenrollees as for those never enrolled, and more than five times as high ($18.00 vs. $2.13) for the disenrollees as for those about to enroll in managed care. The proportion using mental health services is also significantly higher for HPHC disenrollees than for either of the other groups, while allowed charges per user among HPHC disenrollees are more than twice as high as those for beneficiaries about to enroll in managed care.

The comparisons between those never enrolled and those about to enroll are consistent with favorable selection bias among Medicare beneficiaries for managed care organizations, with those younger and healthier being more likely to enroll (and stay enrolled). Comparisons between HPHC disenrollees and the two groups indicate that while a very small proportion of Medicare beneficiaries disenroll from HPHC, those who do have high rates of utilization after leaving the Plan. It is not clear, however, if this is the result of poorer health among those leaving or a pent-up demand for services that were not received while in the HMO. The most significant finding was the use of mental health care for disenrollees. Our case study (Appendix A) describes the mental health benefits and

providers available to HPHC members. Unfortunately, we do not have comparable post-disenrollment utilization data for beneficiaries who switch to another managed care plan after lwaving HPHC. These beneficiaries account for nearly half the sample disenrolling during our study period. Results from Nelson *el al* (1997) suggest that switchers more closely resemble HMO enrollees who stay in the managed care organization than those who return to fee-for-service. Nevertheless, the high-utilization for beneficiaries returning to fee-for-service is important in itself.

4

Discussion

The purpose of this study was two-fold. The first purpose was to develop a series of Medicare performance indicators that could be applied to both managed care and fee-for-service data. The second was to operationalize these indicators using Medicare fee-for-service and Medicare managed care data, to determine whether the indicators could in fact be implemented in a meaningful manner. In this chapter, we discuss the results and implications of the study. We begin by focusing narrowly on the results from the fee-for-service and managed care data and discuss the interpretation of our quantitative results. We then discuss more broadly the "lessons learned" from conducting the study and the implications of our findings for developing a performance monitoring system for Medicare managed care.

4.1 Comparison of Fee-For-Service and Managed Care Results

In this study, we compare performance in the fee-for-service sector with two divisions of Harvard Pilgrim Health Care (HPHC): the staff-model Health Centers Division (HCD) and the IPA-type Medical Groups Division (MGD). The two divisions have very different physician contracting and payment arrangements and different institutional structures,

allowing us to compare results *within* the HMO as well as *between* managed care and fee-for-service. This section briefly summarizes the results for our 19 performance indicators.

Preventive Care

Given the HMO's incentives to contain costs of future care and the philosophical emphasis on prevention, we expected that performance in the HMO would surpass that of fee-for-service practice. This was clearly the case for the colon cancer screening rate, which was over 50 percent for both divisions of the HMO, while only 36 percent of fee-for-service beneficiaries received any type of screening test during the 24-month study period.[1] Nearly twice as high a proportion (77 percent) of aged women in the HCD received breast cancer screening during the 24-month period compared with women in fee-for-service (40 percent);, performance in the MGD was between these two, with 67 percent of women receiving the test. We expect that much of the difference resulted from the use of an automated reminder system in the HCD that notifies physicians when a member is due for mammography. In this instance, the managed care "philosophical emphasis" on prevention and the financial incentives to provide preventive services have been institutionalized into a reminder system to help insure that services are in fact provided. In the MGD, which has no such automated system, methods of "reminding" physicians that care is due vary across the groups, and consequently the rate of mammography is lower.

[1]Fee-for-service coverage of fecal occult blood tests was limited during our study period, contributing to the low figure.

Chronic Disease Care

Care for chronic diseases is an area where managed care has the potential to outperform fee-for-service because of the greater ability (and incentives) to coordinate care and manage cases through a primary caregiver. HPHC has been in the process of developing automated reminders for specific conditions (such as diabetes) and guidelines for treatment of common conditions (such as many of the ambulatory care sensitive (ACS) diagnoses). On the other hand, there are concerns that patients with chronic diseases, who may be quite expensive to treat, may be underserved and see their health deteriorate in managed care (Ware, *et al.*, 1996). The extent to which HMO initiatives to coordinate care will actually result in "care management" as opposed to cost reduction through "utilization management" has not been demonstrated.

Our study found that both divisions of the HMO performed quite well in treating chronic conditions. Rates of secondary preventive services for diabetics were higher in the HMO than in fee-for-service, while the admission rates for ambulatory care sensitive conditions were lower (meaning that fewer patients reached the point which required a hospitalization).[2] Rates of outpatient care pre- and post- ACS admission were quite high (80-85 percent) for both fee-for-service and managed care, indicating that most patients did have contact with the medical system before and after their actual hospitalization. For the HCD (which has computerized data on prescriptions), we also found that rates of follow-up

[2] Admission rates for ACS conditions may reflect the health status of the study population. If HPHC beneficiaries are healthier (controlling for age) it would help explain differences in hospitalization rates.

for patients with prescriptions for anti-hypertensive or anti-depressant medications were quite high (over 90 percent).

Diagnosis Specific Care

Our three indicators for diagnosis-specific care highlight the problem inherent in developing this type of indicator. By focusing on a very specific condition (or incident) it is possible to develop an indicator for which there is a consensus on appropriate treatment. However, the narrow focus also implies that sample sizes quickly become an issue.

The conditions we chose (myocardial infarction, hospitalization for depression, abnormal mammogram) are not rare or exotic conditions among the elderly. However, given the number of Medicare beneficiaries enrolled in HPHC, and the resulting small samples and wide confidence intervals, it is difficult to draw any conclusions regarding performance across the three sectors.

Specialty Care

Perhaps more than any other area, skeptics of managed care worry about the incentives to limit use of expensive specialty care. Unfortunately, provision of specialty care is a very difficult area to monitor, since there is so little agreement as to when referrals to specialists are needed. We chose three relatively common procedures in the Medicare population--lens replacement, hip and knee replacement, and coronary revascularization--and calculated the population-based rate of each procedure. While differences in procedure rates

may in part be attributed to differences in incidence of disease, dramatically high or low rates may be cause for concern. Not surprisingly, we found that the surgical rates were generally higher in fee-for-service than the HMO divisions. However, this may reflect overutilization in fee-for-service, given the incentive structure, as opposed to underutilization in managed care. Alternatively, both rates could be appropriate but reflect differences in casemix. Moreover, given the sample sizes in the HCD and MGD, the number of beneficiaries receiving these surgeries in the managed care setting is relatively small and unstable from year to year.

Primary Care

The proportion of beneficiaries with at least one physician visit during a 12-month period is quite high for all three sectors, ranging from 88 percent in fee-for-service to 94 percent in the HCD. A more striking comparison is found for the percentage of new enrollees with at least one visit during the first two months of enrollment. This rate is much higher for the HCD than the MGD, and the gap narrows, but does not disappear as the time horizon is expanded. The HCD's high rate reflects its aggressive campaign to triage and assess high risk patients. The lower rate for the MGD may reflect or the movement of patients into the MGD who join HPHC from another HMO or fee-for-service but do not change physicians. These patients would not be assessed as new patients, since they continue to visit the same medical group and physician as before joining HPHC.

4.2 Implications for Developing a Monitoring System

This project was intended to serve as a pilot study for determining what measures could be constructed--and meaningfully interpreted--with "good" managed care data. It was designed to help HCFA in the development of a framework for monitoring managed care. This would parallel their ongoing efforts to monitor care in the fee-for-service sector. Hence, we conclude with a discussion of "lessons learned" during the course of the study that addresses the implications for applying a set of performance measures to other health plans or providers.

4.2.1 Developing the Set of Indicators

A crucial first step to the study was development of a list of indicators. In addition to the indicators included in this report, we also had considered several indicators that were eventually deleted from the analysis. Upon further consideration and examination of the data, we did not feel that these indicators could be constructed in a meaningful manner. However, these indicators are worth documenting so future researchers may be aware of the shortcomings we identified. Other indicators on our initial list and our reasons for deleting them are as follows:

Influenza vaccination rate. Constructing the vaccination rate from claims/encounter data is problematic since many seniors may receive the flu vaccine at health fairs, senior centers, etc.

Rates of secondary preventive services for individuals with coronary artery disease (CAD). This indicator contained four components--the percentage of beneficiaries with a CAD diagnosis with each of the following during a 12 month period: (1) two or more visits with an internist or cardiologist, (2) influenza vaccination, (3) blood pressure screening, and (4) serum cholesterol test. The latter three components would be difficult (or for blood pressure screening, impossible) to measure accurately using claims/encounter data. Other services for CAD patients such as stress testing and echocardiography are not proven appropriate for all patients. While the visit rate could have been constructed, this is very similar to other indicators in the analysis, and contributes little to the list.

Rate of follow-up for abnormal pap smear. The incidence of abnormal pap smears is very low among elderly women. While a potentially interesting indicator for the Medicaid or commercially insured population, this is a very rare condition among Medicare beneficiaries.

Timing of endarterectomy for individuals with cerebrovascular disease. This indicator was defined as the percentage of beneficiaries undergoing carotid endarterectomy who receive surgery within 60 days of the imaging study. It was based on a complicated algorithm that was fairly difficult to understand. It also fails to address the important access issue of whether individuals receive an endarterectomy when it is clinically appropriate. Given the importance of cerebrovascular events among the elderly, we considered as an alternative the rate of imaging for patients undergoing a stroke or transcient ischemic attack. However, imaging may be inappropriate, depending on the patient's overall condition and

the location of the stroke. Thus, given the lack of detailed clinical data on claims, we dropped the indicator entirely.

Rate of post-myocardial infarction cardiology care. There is no clear evidence as to when a specialist (i.e., cardiologist) should be seen by patients with a simple myocardial infarction. Primary care physicians may be quite knowledgeable in treating these patients or (especially in managed care) may consult with a cardiologist without referring the patient for a visit.

Post-menopausal bleeding follow-up. In an earlier era, post-menopausal bleeding was uncommon, and if it occurred was considered a clear indication for diagnostic evaluation (mainly to look for uterine cancer). Currently, however, many women take hormone replacement therapy (HRT), which commonly causes uterine bleeding, sometimes in irregular patterns, such that it is a matter of judgment as to when diagnostic evaluation is appropriate and when watchful waiting is best. Therefore, variation in rates of evaluation for post-menopausal bleeding is likely to be much more sensitive to the frequency with which HRT is prescribed and the way in which clinical judgment is exercised in the face of considerable uncertainty and less likely to be an indicator of access to care.

Fecal occult blood test follow-up. We had originally proposed to determine the rate of follow-up for abnormal fecal occult blood tests in the HCD, where test results are recorded in the electronic medical record. However, we later learned the tests results are only recorded in this format for tests performed in the physician's office and these are generally done on symptomatic patients. Results of routine screening tests that are done at home and

returned to the lab for analysis are not available in this dataset. Thus, we determined that this indicator could only be constructed for a small, non-representative sample of patients.

Diagnosis-based surgery rates. Access to elective surgical procedures, such as cataract surgery, hip and knee replacement, or coronary revascularization are widely-used markers of access to care and have been an important element of international comparisons of access. We include among our indicators the population-based rates for these procedures (Section 3.4.1.). We had originally proposed to also construct diagnosis-based rates for each of the three groups of procedures. However, upon further consideration, we have decided that diagnosis-based rates have several drawbacks. First, if access problems are severe, individuals may never have an opportunity to receive medical care to have the diagnosis made. This would lead to an overestimate of the proportion of the "eligible" population receiving surgery due to undercounting beneficiaries with the condition. Second, the propensity to code diagnoses may vary substantially across settings. Chronic conditions such as cataract and osteoarthritis progress over time; physicians may differ in whether they code the diagnosis the first time it is observed or much later as severity worsens. Third, the coding systems available in our data often do not allow sufficient detail to accurately identify a specific diagnosis. For example, the ICD-9 coding allows site of arthritis to be designated by use of a fifth digit in the diagnosis code. We had originally thought we could use this diagnosis to identify patients with arthritis of the knee or hip who might be candidates for joint replacement. However, in the fee-for-service data, we found that 5 percent of claims with an arthritis diagnosis have no fifth digit, 34 percent have the fifth digit of "0"

(unspecified site) and 12 percent have the fifth digit of "9" (unspecified multiple sites). Given these problems, we felt that the population-based rates were strongly preferable to diagnosis-based rates.

Continuity of care index. We had originally considered constructing the continuity of care index for all three sectors. However, constructing this index requires identifying a set of primary care visits for each individual, so that the proportion of these visits with each provider can be determined. Data from the MGD and fee-for-service sectors both contain a specialty code that we had originally thought could be used to identify visits with primary care providers. However, both datasets contain a specialty code for "clinic" which is widely used and does not provide information on physician specialty. Since it appears that many visits with these codes may be for primary care, but we cannot identify exactly how many or which ones, we cannot construct the index for continuity of primary care. For the HCD, in which specialty is very accurately coded, we did construct the indicator.

4.2.2 Constructing the Indicators

Once we had developed the final set of indicators, they were constructed using the different claims/encounter databases for Medicare fee-for-service, the HCD, and the MGD. In this section, we briefly describe some of the difficulties encountered in developing and interpreting the indicators.

4.2.2.1 Reconciling Differences in Coding Systems

The fee-for-service and MGD data, along with the HCD institutional data, used ICD-9 diagnosis and CPT-4 coding. The HCD ambulatory claims used the COSTAR coding system that was originally developed by Harvard Community Health Plan.

Because of the different coding schemes, we were forced to develop comparable definitions for identifying diagnoses and procedures for all indicators based on outpatient care. In defining the indicators, two questions were considered:

- Is there an identical (or similar) code in each system?
- Are physicians equally likely to use the code (given a procedure was performed or condition was observed) in each system?

For many indicators, developing similar definitions was quite straightforward, as COSTAR coding corresponded quite closely to ICD-9 or CPT 4 coding. For example, the list of codes for colorectal cancer screening tests is fairly extensive, but the definitions of codes correspond closely in ICD-9 and COSTAR coding.

The most difficult definition to develop was for retinal screening for diabetics. The COSTAR system has codes for eye examinations. However, given the payment structure of the HCD, optometrists/ophthalmologists have no incentive to code that a specific test was performed; rather, they are more likely to code the findings of the test. We found that they often coded a diagnosis that would normally require a retinal exam without coding the exam itself. Thus, rather than selecting a few COSTAR codes that would correspond to the CPT codes for retinal exam, we were forced to rely on a series of diagnostic codes that could only

be found if a retinal exam were performed. If a physician failed to code the exam, and found no abnormalities, we may underestimate the numerator for this indicator.

In fee-for-service, physicians may bill for a visit rather than an eye-exam, since payment may differ for the two codes. If this happened, we may also undercount in fee-for-service.

A second coding issue is the appearance of "rule out" diagnoses in the data. The HCD data system allows physicians to mark a diagnosis as being a "rule out"--although it is not clear that these are always indicated. The fee-for-service and MGD data have no such marker for "rule out" diagnoses, and it is impossible to determine which are intended as definitive diagnoses and which are coded as "rule outs." For illnesses which are likely to have a high proportion of "rule out" diagnoses in the claims, this difference in coding complicates development of similar samples. For the diabetes indicators, we required that the diagnosis be attached to a physician claim (rather than, say, a laboratory claim) in an attempt to reduce the number of "rule outs." Given the significant number of beneficiaries in all three data sets with only one diabetes diagnosis, any attempt to identify all patients with the disease is likely to either miss some true cases or include some rule-out diagnoses.[3]

[3] HEDIS attempts to eliminate "rule-out" diagnoses by requiring that the diagnosis appear twice during the calendar year. The disadvantage of this approach is that it may bias estimates of performance indicators upwards, if some patients have only one diagnosis because they are low utilizers of care.

4.2.2.2 Variations in Data Set Structure

In addition to differences in data coding systems, the structures for the data sets varied across the three settings. For example, all of the data systems we worked with had separate files for inpatient institutional claims. However, the actual claims stored in the hospital file differed across the data systems. Initial attempts to locate mammogram codes for the MGD identified only 2 percent of women with claims for a mammogram during a two-year period, including no claims in 1994. Further investigation revealed that claims for Medicare recipients were not located in the ambulatory claims files, but in hospital claims files. In contrast, in fee-for-service data, mammography claims can be found in the physician/supplier file, the outpatient department file, or both files.

This example highlights one danger of working with unfamiliar data sets. If all data (or virtually all data) are missing, as was the case with mammography in the MGD, it is easy to recognize the problem. If some of the data are missing, as was the case in the fee-for-service physician/supplier file, it can be much more difficult to recognize that the problem exists.

4.2.2.3 Costs of Processing Data

The cost of processing claims can be high, especially when it is necessary to search through a large database multiple times, for example, to first search an outpatient database to identify all claims with a particular diagnosis, and then search again to pull all claims for beneficiaries with that diagnosis.

For a medical record database, such as HPHC's Automated Medical Record System, the cost can be prohibitive, even on relatively small samples of data. Since the data source is a medical record, rather than a claim, data processing of relatively small samples of data becomes time-consuming and expensive. Thus, in estimating the burden on plans from implementing a monitoring system, the data processing requirements should not assume that all plans have access to claims data and can process data in a similar manner.

4.2.2.4 Limitations in Sample Sizes

One of our criteria for selecting indicators was that they be related to a high-incidence disease or a high-incidence procedure. Given the limited number of indicators that can be monitored, we did not want to select a rare condition (or procedure) upon which to base a performance measure. Even using relatively common diseases and procedures, our samples were quite small for several indicators in the HCD and the MGD, which had roughly 11,000 and 5,500 aged Medicare members, respectively. Sample size decreases even more for indicators that require a lengthy continuous enrollment period. Even where overall samples were relatively large, we were often limited in the stratifications that could be made.

We developed all indicators and presented rates and confidence intervals regardless of sample size. (Obviously, the likelihood of detecting statistically meaningful differences is much lower for the indicators based on very small samples.) Given the exploratory nature of this project, we felt this was an appropriate approach.

For a set of performance indicators intended as a "report card," an approach that does not rely on audience familiarity with confidence intervals and statistical tests may be more appropriate. For example, HEDIS 3.0 specifies that if a measure applies to fewer than 100 members, the plan should report a 95 percent confidence interval, and that measures based on fewer than 100 members should not be used for comparisons among health plans. Moreover, HEDIS specifies that measures should not be reported when there are fewer than 30 members in the denominator. Our post-depression follow-up measure would not have been reported using this criteria, and samples for the myocardial infarction and abnormal mammogram follow-ups both fell below the 100 member threshold.

4.2.2.5 Interpreting the Results

Claims-based monitoring systems can tell us what occurred in a patient's medical care, but not why. For example, the results of our data processing indicated that the rate of mammography was much higher in the HCD than in the MGD or fee-for-service. However, the claims cannot give us information on whether the difference resulted from provider willingness to encourage mammography, patient willingness to have the procedure, availability of convenient locations/hours for mammography services, or some other reason. In fact, we believe the difference is largely attributable to the HCD automatic reminder system, that prompts physicians when a beneficiary is due to receive a mammogram.

The advantage of the claims-based system is that it can, at relatively low cost, flag areas where the system is doing well or poorly. This allows policy-makers to concentrate

further effort on areas where improvements are needed. By combining a claims-based system with other approaches to gauging access and quality, such as surveys and chart audits, we can gain a much more complete picture of plan performance.

4.3 Conclusion

4.3.1 Generalizability of our Experience

The purpose of this study was to develop a set of Medicare performance indicators that could be applied to managed care plans and to test whether these indicators could be implemented using elements available in an HMO data system. This project was intended to serve as a pilot study for determining what measures can be constructed, and meaningfully interpreted, with "good" managed care data.

We began the study knowing that our HMO data were of higher quality than that found in many managed care organizations. Numerous studies have been published using diagnosis and procedure data from the HCD's Automated Medical Record System (studying conditions as diverse as streptococcal pharyngitis, hypertension, and bipolar disorder). Data from the MGD have not been used for published research to the same extent as data from the HCD. However, the plan has used the data bases for its own internal analysis. Thus, although we have constructed a set of performance indicators with two types of HMO data, it is not clear whether the data systems of other managed care organizations can support the same types of analysis. Many pressures (including HEDIS) are pushing managed care

organizations to improve their data systems. Thus, construction of performance indicators is much more feasible than it would have been even a few years ago

4.3.2 Next Steps

For this project, we developed a set of 19 performance indicators, several of which were constructed using alternate methodologies (for example, varying the episode length). While we constructed multiple rates in order to test the sensitivity of our results to varying definitions, it would be desirable to determine the preferred definition that would be reported as part of the performance monitoring system.

More importantly, it would be desirable to replicate this study using data from other health plans. Using data from two divisions of HPHC, we have found that our indicators can be constructed, and comparisons among the two divisions and fee-for-service practice show meaningful differences in the performance of the three sectors. We have also found, however, that differences in databases can complicate construction and interpretation of the indicators. Extending the work to include data from other health plans would be the next step towards developing these indicators into a monitoring system for managed care performance.

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Appendix A

Appendix A

Profile of Harvard Pilgrim Health Care

The managed care data for this study come from Harvard Pilgrim Health Care (HPHC), formerly know as Harvard Community Health Plan. This appendix provides a profile of the plan, including its provider structure, membership, benefits, capacity and service delivery, medical management systems, care for new members, access, and member satisfaction measurement. The purpose of the case study is three-fold. First, it helps us to better understand the different structures and incentives in the two divisions that provide data for the study. Second, it provides qualitative information on two components of our conceptual framework that we are not measuring empirically (resource availability and satisfaction). Third, it helps in understanding mechanisms used by the plan to monitor/promote access which may help explain plan performance. The appendix is structured in a question and answer format.

1.0 Overview

What is the corporate structure of HPHC? How did it evolve?

In 1966, the Dean and his colleagues at Harvard Medical School began planning for New England's first prepaid group practice, the first in the nation to be affiliated with an academic medical center. Harvard Community Health Plan (HCHP), the result of this effort, opened its doors at one location in 1969. During the ensuing years more sites were established and membership grew. HCHP merged with Multigroup Health Plan, a group model HMO serving the suburban Boston area, in 1986 to become a mixed-model staff/group HMO. In 1990, the Rhode Island Group Health Association, a predominantly

staff-model HMO operating throughout Rhode Island and southeastern Massachusetts, affiliated with HCHP and became the New England Division. In 1995, HCHP affiliated with Pilgrim Health Care, a large managed care organization in the region, to form Harvard Pilgrim Health Care.

HCHP (as we will continue to refer to the organization prior to the merger with Pilgrim Heath Care) included three divisions. The Health Centers Division, the original staff model HMO, has grown to 14 sites in the greater Boston area (see Exhibit A-1). The New England Division, as described above, was formerly an independent HMO in Rhode Island. The Medical Groups Division, in which HCHP contracts with group practices, is the fastest-growing division as it continues to expand its affiliation with existing practices throughout New England. The HCHP enrollment area for the 1994-95 period included portions of New Hampshire, Massachusetts, and Rhode Island. Exhibit A-2 shows the clinical sites that treated HCHP's Medicare enrollees during this period.

How are physicians in the HCD and MGD paid?

The Health Centers Division (HCD) is a staff model HMO. Nearly all care is by salaried staff of HPHC, including that by primary care and most specialist physicians, such as surgeons performing cataract surgery or hip replacement. HCD does not require a full-time physician on staff to care for less common conditions, for example, to perform cardiac surgery. Instead, the HCD contracts with local physicians for part of their time. For very uncommon needs, the HCD purchases services on a fee-for-service basis from highly specialized physicians.

Exhibit A-1 HCHP Health Center Locations

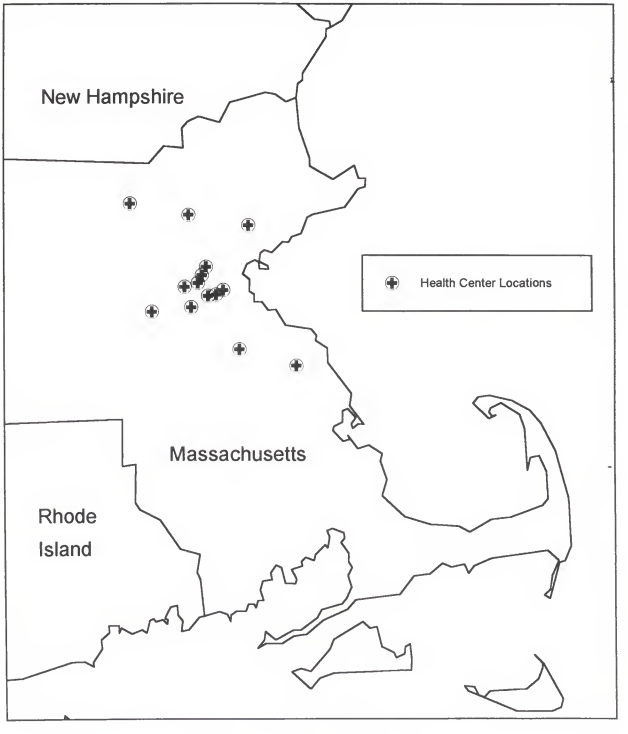
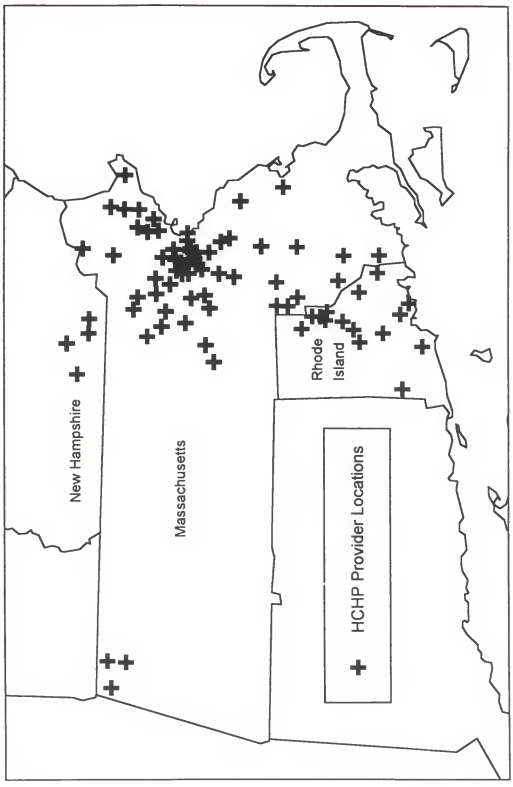


Exhibit A-2 HCHP Medicare Plan Provider Locations



In the Medical Groups Division (MGD), HPHC contracts with groups of physicians who are geographically dispersed throughout the region and are not on HPHC's staff. Physicians are paid through a variety of negotiated arrangements. For large multispecialty groups, capitation payments are negotiated for ambulatory and professional care and bonuses are paid for clinical and administrative performance, such as member satisfaction, meeting appropriateness of care criteria, compliance with the drug formulary, and prior notification of elective hospital admissions. Small multispecialty groups have arrangements similar to large multispecialty groups except capitation rates are age- and sex-based and not negotiated. For single specialty groups, primary care is capitated on an age- and sex-adjusted formula. Specialty care is paid for from a risk pool, there is a separate budget for hospital care, and bonuses are paid as for large multispecialty groups. For all groups there is a ceiling on the losses that can be incurred by an individual group.

2.0 Membership and Enrollment

What does membership in HPHC look like?

The enrollments during the study period in the Health Centers and Medical Groups Divisions were as follows:

Division	Total Enrollment (as of 9/95)	Medicare (as of 5/95)
Health Centers	302,056	11,047
Medical Groups	186,027	5,493

Just over half of the total enrollment was female, and 5 percent was over age 65. Enrollees were multi-ethnic; 74 percent were White, 16 percent African American, 4 percent Hispanic, 1 percent Asian, and 6 percent other/unknown. Membership included many immigrants from Europe and Latin America, reflecting the ethnic make-up of the Boston area as a whole.

Table A-1 presents gender and age breakdowns for Medicare enrollees in the Health Centers and Medical Groups Divisions, and for all Medicare beneficiaries nationally. HCHP membership contained a slightly lower proportion of female and more enrollees in the 65-69 age group than the overall Medicare population. The plan contained a lower proportion of older enrollees, particularly among the oldest age groups. While 24 percent of Medicare beneficiaries are age 80 or older, only 12 percent of HCD and 16 percent of MGD Medicare enrollees were in this age group.

What type of information is available to new members?

New members are sent a packet of information including HPHC's philosophy of health care, benefits, monthly costs, options (such as drug or dental coverage), and a physician directory (with locations).

How are new members assigned to primary care providers?

In the Health Centers Division, new members receive a listing of all physicians with a brief description about each physician's background. Members service representatives at each of the 14 centers take telephone calls from new members and direct them to clinicians

Table A-1

Demographic Characteristics of Aged Medicare Enrollees: Nationally and for HPHC Enrollees

			Harvard Pilgrim Health Care	
	United States	FFS Area	Health Centers Division	Medical Groups Division
Percent Female	60 %	62 %	56 %	55 %
Percent by Age Category:				
65 - 69	30	23	42	44
70 - 74	26	29	28	24
75 - 79	20	23	18	16
80 - 84	13	15	8	9
85+	11	10	4	7

NOTES: 1. National values are for all aged Medicare beneficiaries.
2. FFS area represents the portion of New England included as our comparison group.

SOURCES: 1994 Data Compendium of the Health Care Financing Administration; Harvard Pilgrim Health Plan enrollment data.

with open practices, taking into consideration members' preferences (such as for gender or language spoken).

The various provider groups in the Medical Groups Division do not have any shared way of assigning new patients or monitoring availability and caseloads. Each group arranges for the assignment of new members in its own way.

What types of risk assessment are performed on new Medicare members?

Members of a geriatrics assessment team survey all new Medicare members by telephone as part of a risk assessment protocol. The instrument includes questions about self-rated health, treatment of illness, number of medications, recent hospitalizations, activities of daily living and other risk factors. A specially trained nurse reviews all completed risk-assessment questionnaires, guided by definitions for risk strata. Standards for scheduling an initial visit are: very high risk, within 10 working days; high risk, 25 working days; moderate risk, 1-3 months; and low risk, 2-6 months. The risk assessment questionnaire does not take into account non-medical factors (e.g., need for transportation, existence of family supports) that might affect the need for health services, but specially trained nurses can over-ride the score in assigning risk. Risk status information is shared with the member's primary physician, a First Seniority Committee at each HCD site, and in some cases, case managers at each site. If the risk assessment review suggests that the member is at high risk the risk assessment team may arrange for some of their care before the initial visit with a clinician.

3.0 Benefits

What benefits were available for Medicare beneficiaries during the 1994-95 study period?

HPHC's main insurance plan for Medicare patients is First Seniority, HPHC's Medicare "risk" contract. This is the plan actively being marketed today. During our 1994-95 study period HCHP offered three other Medicare products. CarePlus was available only to members of the New England Division in Rhode Island and southeastern Massachusetts. The two remaining plans, Plan65 and Senior Care, were both phased out beginning in 1995 with enrollees being converted to First Seniority. Exhibit A-3 indicates the clinical sites available to members of each plan as of 1994.

Enrollees in the HCHP plans and those in Medicare fee for service (FFS) plans received different benefits (although benefits in the three HCHP plans were quite similar). These are detailed in Tables A-2 through A-6 at the end of this appendix. For outpatient physician care, HCHP members were responsible for only a $5 copay, while FFS Medicare enrollees had a $100 dollar deductible and pay 20 percent of allowed charges thereafter for all outpatient care. HCHP also provided full coverage (no copay) for laboratory and x-ray services, durable medical equipment, ambulance service, for which FFS enrollees were also subject to the Part B deductible and copays. HCHP covered numerous preventive and screening services such as routine physical exams, hearing exams, eye exams, and immunizations that were not covered by FFS. In addition, HCHP offers optional prescription drug coverage which was available to FFS enrollees only through a supplemental plan.

Exhibit A-3 HCHP Medicare Plan Provider Locations

Physician inpatient services and hospital care were covered in full for HCHP enrollees, as were home health services and skilled nursing facility stays (with some limitations on covered days per benefit period). For outpatient mental health and substance abuse services, HPHC members paid $5 per visit for the first 8 visits, $35 per visit for the 9th through 20th individual session, and 50% of all charges for all visits thereafter. FFS enrollees were subject to the Part B deductible (if they have not already paid it) and pay 50% of charges thereafter. Inpatient mental health coverage was similar in HPHC and FFS.

4.0 Capacity and Service Delivery

How does HPHC monitor a provider's caseload size? Are there caseload expectations or limits for physicians?

In the Health Centers Division, caseload is tracked by computer. If a physician's caseload is low, the physician is not allowed to close the panel. The current panel target for commercial members is 1,600, reduced from 1,800, to allow physicians more time for case management. Each full-time physician is counted as one FTE, while each nurse practitioner or physician assistant is counted as one half an FTE for panel size calculations. HPHC is developing a more complex metric for establishing target panel sizes, taking into account members' age, gender, visit rates and possibly certain conditions. Panel targets are smaller in proportion to the number of Medicare members; if the panel were entirely Medicare, the panel size would be 600-700.

HPHC is not involved in caseload monitoring for the Medical Groups Division. The groups make their own decision about whether to keep their panels open or to close them. Unlike some HMOs, HPHC does not pressure groups to be open to new members at all

times. As a result, busy groups will sometimes close to HPHC or be effectively closed, i.e., accepting new patients but with very long waits for appointments.

How is productivity monitored? Are there productivity expectations for physicians?

The standard for the Health Centers Division was historically 30-32 bookable hours per week, equaling roughly 80 visits per week. These standards are changing with the introduction of "designated rounders," also called intensivists, who are assigned to follow hospitalized members during their inpatient stays. For example, there are typically 30-40 HPHC members at the Brigham and Women's Hospital each day who would be followed by "rounders" rather than by their regular primary care physicians. Thus, a primary care physician's bookable hours would increase as they are relieved of hospital duty.

In the Medical Groups Division, there are no productivity requirements set by HPHC. Groups develop their own internal arrangements to monitor their individual physicians.

How does HPHC credential new physicians or practices?

In the Health Centers Division the application process for physicians is handled at the organizational level. The applicant must submit proof related to education, residency, license, specialty, national medical boards, and any credentials at other institutions. Board eligibility is required and new hires are expected to become board certified within a specified time frame. Previous hires without board certification are grandfathered. HPHC checks the National Practitioner Data Bank, the Board of Registration, and references from employers or colleagues. The actual hiring decisions are made by the individual health centers, with organizational approval. Ongoing staff need to be recredentialled every two years.

Physicians are reviewed annually, with respect to clinical quality, service to patients, service to the team, and cost effectiveness/resource utilization.

HPHC has an extensive process for credentialing new groups wishing to join the Medical Groups Division. Standards for a group to join HPHC include the following:

- the group must demonstrate willingness to participate in managed care;
- the group must have hospital admitting privileges;
- the group must provide self-contained 24-hour coverage, (between-group coverage can only be provided if both groups belong to HPHC);
- the group must provide the full range of services consistent with primary care and the practitioner's specialties;
- the group must have a network including a full range of specialists. The group can either have their own referral network or be willing to accept the specialists that HPHC assigns to them.

Interested groups submit a profile of the practice and the individual physicians to HPHC. This profile includes the nature of the practice, hours of operation, coverage, education, experience, and board certification status of physicians. Physicians must be board eligible, but are not required to be board certified. If an individual member of a practice is unacceptable, HPHC will not contract with the group.

After reviewing the profile, HPHC staff make a series of on-site visits to the group. The HPHC staff includes business personnel, the medical director responsible for the group, and support personnel. HPHC staff look at the site, review the records and record

management practices of the group, and provide information to the group, about HPHC practices.

How is provider availability for new patients assured?

When practices are closed to new patients, members' choices are constrained. HPHC has taken steps to assure that as many practices as possible are open. With the advent of First Seniority, the Plan undertook a site by site analysis of physicians' availability for new patients. It found several centers with a high proportion of closed practices (in July 1995 the range was 0 - 60%) and recommended that they review their methods for managing panels. At monthly intervals, an administrator for each department at each site distributes charts that show each clinician's availability--e.g., waiting time to next available short (return) appointment and to next available long (initial) appointment. Actual availability for physicians and nurse practitioners in each specialty is displayed along with standards for each. Some centers have also prepared summaries of each physician's availability over several consecutive months.

5.0 Medical Management Systems

What type of reminder system does the Plan have to ensure services are provided?

The Health Centers Division's electronic medical record displays a reminder system at the beginning of the medical record at each encounter. The conditions included in the reminder system are determined system-wide by each specialty. Three kinds of automated reminders exist: for preventive health services such as mammography and Pap smears;

periodic reminders such as for influenza vaccine every fall; and registry-based reminders such as for diabetic eye examinations. HPHC is considering developing reminder systems for patients who have missed scheduled visits.

Practices in the Medical Groups Division do not have an electronic appointment and medical record system in common and as a result, do not have such well developed reminder systems (although a variety of systems exist at the various sites). HPHC issues batch lists of members who have HEDIS "defects" which serve as reminders to providers that services are required.

What type of case managers does the Plan have?

Most Health Center Division sites have case managers who become involved with members identified as high risk or at the request of their physicians. The target staffing ratio is one case manager per 1,500 Medicare members (compared with 1:2,000 for other members). An automated case management information system for extended care facilities is being developed.

In MGD, HPHC keeps 20% of the Medicare capitation for administrative expenses. Eighty percent of this share, 0.16% (.8 x .2), is spent on case management. There are 30 RN case managers, each of whom are assigned to particular medical groups. Since there is very little turnover in this department, the case managers are highly experienced in case management for the commercial population. They are developing their expertise in case management for Medicare members. Many worked in home health agencies before coming to HPHC. While each medical group is assigned a case manager, the case managers are not

onsite and spend much of their time case finding and preparing discharge plans at local hospitals. Primary care physicians also refer to case managers directly.

What clinical management protocols have been developed for chronic illness?

The Health Centers Division has developed a set of guidelines for preventive care and the care of many acute and chronic conditions. The guidelines are prepared by the Clinical Quality Management group in collaboration with clinicians with specific expertise or a strong stake in the guideline. Guidelines are made available through a hard copy, loose-leaf book and sent to all clinicians. Guidelines are updated periodically. A few of the guidelines are specifically for the care of elderly patients.

Because 30-40 of the beds at Brigham and Women's Hospital are occupied by Health Center Division members on any given day, the hospital and HPHC have collaborated in the design of "critical pathways" for specific diagnoses. Developed by multidisciplinary teams, the pathways describe the usual time course for procedures, medications, and transfers to simpler facilities for average patients with specific conditions such as acute myocardial infarction. The protocols also include elements of follow-up care.

The Medical Groups Division offers incentives to the groups to use chronic disease management modules developed by HPHC. In addition, groups develop their own guidelines. They track health and financial outcomes of care and use them to select diseases for which to develop guidelines.

What is HPHC's philosophy regarding geriatric training and use of geriatricians?

HPHC believes that most care of the elderly should be by primary care physicians (general internists) and not geriatricians. To transfer members to geriatricians when they reach age 65 years would result in discontinuity of care and require a massive reworking of the workforce as more elderly patients become members. The role of geriatricians is to raise the level of understanding of geriatric care among generalists. The system of care is thus multi-tiered: most elderly members are seen by general internists; some of these patients are seen in consultation with geriatricians; and a very few are directly under the care of geriatricians. To implement this strategy, HPHC seeks to have a geriatrician (either by specialty training or by retraining) at each of the large sites, to act as a consultant and to care for the most complex geriatric patients. It has also redeployed some general internists to extended care facilities, where they specialize in post acute care.

To increase geriatric competency among HPHC clinicians as a whole (both Health Centers Division and Medical Groups Division), the Plan has begun a special geriatrics education program known as the Medicare Education Partnership Program. The program organizes large conferences and small teaching sessions at the various sites, offered free of charge to all clinicians in HPHC. This initiative was motivated by HPHC's earlier experience with a small number of capitated Medicare patients. Primary physicians had been overwhelmed by the needs of Medicare patients, and the program had not been financially successful because HPHC has no special plan for managing their care.

Assuring geriatrics competency in the Medical Groups Division is complex because physicians are affiliated with HMOs other than HPHC and may receive geriatrics education

from the other HMOs or other courses. Therefore, it is difficult to track what MGD physicians have had in the way of geriatrics education.

6.0 Mechanisms to Monitor and Promote Access

Does HPHC have standards regarding waiting times? How are waiting times monitored?

Standards for waiting times were developed in 1996 (after the study period for this project). The new standards for appointment access are as follows:

Primary Care	
Routine non-symptomatic appointments (e.g., check-ups, immunizations)	<= 30 calendar days
Non-urgent symptomatic (e.g., non-acute symptoms)	<= 7 calendar days
Urgent (e.g., acute symptoms)	<= 24 hours
Emergency	Immediate

Specialty Care	
Initial non-urgent appointment (e.g., non-acute symptoms)	<= 14 calendar days
Initial urgent appointment (e.g. acute symptoms)	<= 7 calendar days

Mental Health Care	
Routine, non-symptomatic, preventive care (e.g., non-acute counseling for vocational issues)	<= 7 days
Initial non-urgent symptomatic care (e.g., chronic but non-acute symptoms or poor functioning)	<= 7 days
Follow-up non-urgent symptomatic care	<= 14 days
Initial and follow-up urgent appointments (e.g., patients at risk of serious deterioration of functioning or in acute crisis)	<= 24 hours
Emergency (i.e., risk of imminent physical harm to self or others or psychosis)	Immediate

The computerized appointment system can monitor waiting times in HCD.

What provisions does HPHC make for after-hours and emergency care?

Arrangements for after hours care differ in the HCD and the MGD. The Health Centers Division has selected three centers (Kenmore, Somerville, and Wellesley) that are geographically dispersed to provide extended hours. These centers are open late in the evenings and during the day on weekends. Members are encouraged to call after-hours either to make an appointment for urgent care or to have a nurse call them back. Some patients show up at the urgent care clinics without calling, which is also allowed. Regular staff and contract staff (such as some nurses who only work Saturdays and Sundays) provide after-hours care. The patient's primary care physician routinely receives a report of the encounter

within two days. However, if follow-up is necessary, urgent care will call the primary care office.

To assist members who need after-hours care, HPHC staffs a liaison nurse or physician at Brigham and Women's Hospital. The organization has not had a problem with members using the emergency room inappropriately. The types of cases seen in the ER vary. Before midnight, patients have the option to go to urgent care, and normally would only use the ER in case of a true emergency. Thus, someone with relatively minor injuries from a household accident would be referred to urgent care in the evening, while someone with a suspected heart attack would be told to go to the ER. After midnight, anyone whose condition is serious enough that they cannot wait until morning for care would be referred to the ER. If necessary, physicians can authorize an ambulance to bring the patient to the hospital.

Within the plan's coverage area, the hospital providers used for elective care are restricted by the plan, but any hospital can be used in an emergency. Thus, for a true emergency, patients would be sent to the closest appropriate hospital. However, if they are admitted to a hospital not affiliated with HPHC, their physicians may arrange a transfer to a hospital with which HPHC contracts.

Within the MGD, all groups are required to arrange 24-hour coverage for HPHC members. Only physicians affiliated with groups having an HPHC contract are allowed to provide coverage, to ensure that all physicians potentially treating members meet HPHC standards. Beyond these types of basic restrictions, arrangements for after hours care differ among groups, as they are allowed to determine how coverage will be provided.

Urgent care outside the HPHC enrollment region is covered, with "urgent" defined as care that is not "preventive, foreseen or routine." Some concerns have been raised regarding exactly what out of area care should be covered for patients with chronic conditions. This issue is particularly relevant among the elderly who have a high prevalence of chronic conditions and are more likely than younger beneficiaries to be out of area on extended trips. For example, if a beneficiary with a chronic condition were in Florida for 3 months during the winter, what care would be "foreseen" versus "unforeseen?" While this has not been a major issue for the plan, it is recognized as a gray area that could become increasingly common with the growth in the number of Medicare enrollees.

How do members get referrals to specialists?

HPHC enrollees do not need a primary care referral for dermatology, mental health or obstetrics/gynecology care. For other specialty referrals within the HCD network, a primary care physician has to authorize a referral for the first visit to a given specialist; thereafter, the specialist freely determines ongoing care. For out of network referrals, the primary care physician refers for a limited number of visits (which can be extended if necessary).

In the MGD, the primary care groups subcontract to specialists on a contracted fee-for-service basis. With few exceptions, the HCD specialists are not available to MGD (exceptions include second opinions, and HCD's oncology service.)

The specialist appointment is either made by the medical assistant, through interoffice mail or if emergent, physician to physician via phone call or page. If a member does not

follow through with a specialist within 3 months of the referral, the primary care physician is notified.

How do members gain access to mental health services? What mental health services are available?

Members do not need a referral to schedule an initial appointment for mental health care. However, the mental health benefit is tightly managed and oriented toward brief interventions for individual therapy and groups for the chronically mentally ill. Mental health care is provided by professionals with various training including psychiatrists, psychologists, masters in social work and advance practice nurses.

The coverage for outpatient mental health and substance abuse services differs from other outpatient services. The coverage for each calendar year is: $5 copay per visit for visits 1-8; for visits 9-20, copay of $15 per visit for a group session or $35 per visit for an individual session; after the 20th visit, copay of 50 percent of the full charge per visit.

What types of enabling services (translation, transportation) are available to Medicare members?

The HPHC Office of Diversity helps coordinate translation services. Most centers have staff who speak a variety of languages (this information is kept by each center), and HPHC currently is pilot testing the use of on-call translators in a few centers with the highest proportion of non-English speakers. Otherwise, translation services are provided by AT&T.

HPHC does not provide any special transportation services for Medicare members, but case managers assist in coordinating services (such as the Senior Shuttle) that are available locally. Additionally, some geriatricians make home visits.

7.0 Measurement of Member Satisfaction

What approaches does HPHC use to measure satisfaction among members?

HPHC has been surveying patients' satisfaction for many years, including a member survey and surveys tied to specific visits. In the past, the *visit survey* was handed out to members during office visits to primary care physicians and specialists. The rationale for sampling visits rather than members was to anchor responses to a specific encounter rather than to elicit member satisfaction in general. The 21 question instrument asked about satisfaction with the length of time to get an appointment, time of day, waiting during the visit, behavior of clinicians and support staff, and overall satisfaction. In 1994, 29,000 visit surveys were completed. Most respondents reported being satisfied, however there is potential selection bias in who chose to respond and the wording of the questions may also influence the responses.

HPHC is testing use of a mail survey to a random sample of members with recent visits. This will allow HPHC to calculate response rates and also to avoid the potential selection bias associated with the previous approach. Additionally, a mail survey is more practical given over 4000 provider sites.

HPHC surveys about 150 – 200 visits per physician annually. Pooled together within a department, this is enough to produce estimates of satisfaction that are statistically meaningful on the department level. Information on individual physicians, while statistically unstable, provides the individual physicians some feedback. In the past, satisfaction information was only sent to department managers and chiefs. Now, the information about individual physicians and comparative information by department and across sites is sent to

individual physicians as well. HPHC is also working with other HMOs, through NCQA, to develop a common satisfaction survey instrument.

HPHC's *member survey* is more comprehensive than the visit survey and is administered through the mail. The member survey collects more general impressions about the delivery system in the areas of medical care, access, support staff, coverage, cost and administration. Comparisons of survey results are made across years. The response rate is approximately 35 percent.

Another approach to monitoring member satisfaction is to review members' reasons for voluntary disenrollment. All members who disenroll must provide documentation of their decision in writing and HPHC asks for their reason for disenrollment in a specific form for this purpose. Although not all disenrollees respond to this part of the form, some patients who do not fill out the form volunteer their reasons. All disenrollment information is reviewed in a single office and reasons for disenrollment classified into crude categories. Few voluntary disenrollments are because of dissatisfaction. Those disenrollees who do cite dissatisfaction as their reason for leaving HCHP are primarily concerned with either access to specialists or with administrative issues regarding coverage of emergency room use. More detailed, system-wide reports of disenrollment are being developed.

What types of surveys does the plan use to measure satisfaction among Medicare beneficiaries?

There is no separate survey instrument for Medicare members. However, information on age is included so it is possible to examine the Medicare subgroup or elderly cohort separately.

What actions, if any, have been taken to improve member satisfaction?

In HCD, satisfaction information is fed back to individual physicians who discuss it with their department chiefs to identify areas for improvement. Summary information is also sent to medical directors and corporate management, who use the data to identify patterns of dissatisfaction and to plan remedial action. HPHC plans to use patient satisfaction indicators as part of a financial incentives program.

Some MGD groups have chosen to undertake projects to improve satisfaction as a continuous quality improvement project. HPHC provides financial incentives and technical support to groups who choose to develop any continuous quality improvement activity including improving satisfaction.

Appendix B

Table B-1

Sample Sizes for Access Indicators

1. BREAST CANCER SCREENING RATE

	Fee-For-Service			HCD			MGD		
	Sample	Number with Mammography	Rate	Sample	Number with Mammography	Rate	Sample	Number with Mammography	Rate
Total	211,026	86,112	40.8%	1,638	1,312	80.1%	910	608	66.8%
Age 65-74	96,990	52,128	53.7%	938	812	86.6%	462	361	78.1%
Age 75-84	84,581	30,384	35.9%	580	444	76.6%	358	219	61.2%
Age 85 and older	29,455	3,600	12.2%	120	56	46.7%	90	28	31.1%

2. COLON CANCER SCREENING RATE

	Fee-For-Service			HCD			MGD		
	Sample	Number with Screening Test	Rate	Sample	Number with Screening Test	Rate	Sample	Number with Screening Test	Rate
Total	339,627	121,508	35.8%	2,089	1,274	61.0%	2,045	1,106	54.1%
Age 65-74	167,693	63,934	38.1%	1,298	819	63.1%	1,202	691	57.5%
Age 75-84	132,632	47,582	35.9%	707	427	60.4%	713	370	51.9%
Age 85 and older	39,302	9,992	25.4%	84	28	33.3%	130	45	34.6%

Table B-1

Sample Sizes for Access Indicators (continued)

3. RETINAL EXAMINATION RATE FOR DIABETES

	Fee-for-Service			HCD			MGD		
	Sample	Number with Retinal Exam	Rate	Sample	Number with Retinal Exam	Rate	Sample	Number with Retinal Exam	Rate
Total	34,260	18,760	54.8%	1,092	724	66.3%	495	315	63.6%
Age 65-74	16,925	8,989	53.1%	745	483	64.8%	305	188	61.6%
Age 75-84	14,214	8,142	57.3%	322	222	68.9%	161	109	67.7%
Age 85 and older	3,121	1,629	52.2%	25	19	76.0%	29	18	62.1%

4. VISIT RATE FOR DIABETES

	Fee-for-Service			HCD			MGD		
	Sample	Number with two visits	Rate	Sample	Number with two visits	Rate	Sample	Number with two visits	Rate
Total	34,260	20,957	61.2%	1,092	996	91.2%	495	469	94.7%
Age 65-74	16,925	10,060	59.4%	745	682	91.5%	305	291	95.4%
Age 75-84	14,214	8,806	62.0%	322	292	90.7%	161	149	92.5%
Age 85 and older	3,121	2,091	67.0%	25	22	88.0%	29	29	100.0%

Table B-1

Sample Sizes for Access Indicators (continued)

5. ADMISSION RATE FOR AMBULATORY CARE SENSITIVE CONDITIONS

1994

	Fee-for-Service			HCD			MGD		
	Sample	Number of admissions	Rate (per 1000)	Sample	Number of admissions	Rate (per 1000)	Sample	Number of admissions	Rate (per 1000)
Total	363,481	25,658	70.59	8,764	410	46.78	4,196	150	35.75
Age 65-74	181,762	9,033	49.70	5,829	156	27.28	2,535	71	28.01
Age 75-84	140,436	11,522	82.04	2,589	183	70.68	1,389	59	42.48
Age 85 and older	41,283	5,103	123.61	346	68	196.53	272	20	73.53

1995

	Fee-for-Service			HCD			MGD		
	Sample	Number of admissions	Rate (per 1000)	Sample	Number of admissions	Rate (per 1000)	Sample	Number of admissions	Rate (per 1000)
Total	325,984	23,877	73.25	9,075	420	46.28	4,319	198	45.84
Age 65-74	164,602	8,214	49.90	5,769	189	32.76	2,633	88	33.42
Age 75-84	126,472	11,174	88.35	2,928	167	57.04	1,394	82	58.82
Age 85 and older	34,910	4,489	128.59	378	64	169.31	292	28	95.89

Table B-1

Sample Sizes for Access Indicators (continued)

6. RATE OF PRE-HOSPITAL CARE FOR AMBULATORY CARE SENSITIVE ADMISSIONS

1994

	Fee-for-Service			HCD			MGD		
	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate
Total	16,778	13,839	82.5%	311	261	83.9%	128	107	83.6%
Age 65-74	5,878	4,788	81.5%	134	117	87.3%	71	60	84.5%
Age 75-84	7,491	6,292	84.0%	135	114	84.4%	43	36	83.7%
Age 85 and older	3,409	2,759	80.9%	42	30	71.4%	14	11	78.6%

1995

	Fee-for-Service			HCD			MGD		
	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate
Total	22,577	17,620	78.0%	310	270	87.1%	153	133	86.9%
Age 65-74	7,325	5,613	76.6%	159	124	78.0%	83	71	85.5%
Age 75-84	10,477	8,313	79.3%	116	113	97.4%	54	48	88.9%
Age 85 and older	4,775	3,694	77.4%	35	33	94.3%	16	14	87.5%

Table B-1

Sample Sizes for Access Indicators (continued)

7. RATE OF POST-HOSPITAL CARE FOR AMBULATORY CARE SENSITIVE ADMISSIONS

	Fee-For-Service			HCD			MGD		
	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate
Total	13,895	11,210	80.7%	297	245	82.5%	148	126	85.1%
Age 65-74	4,928	4,056	82.3%	109	96	88.1%	66	61	92.4%
Age 75-84	6,220	5,079	81.7%	138	116	84.1%	54	43	79.6%
Age 85 and older	2,747	2,075	75.5%	50	33	66.0%	28	22	78.6%

	Fee-For-Service			HCD			MGD		
	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate
Total	18,249	13,891	76.1%	276	229	83.0%	140	120	85.7%
Age 65-74	6,078	4,744	78.1%	121	106	87.6%	69	60	87.0%
Age 75-84	8,471	6,474	76.4%	114	94	82.5%	46	40	87.0%
Age 85 and older	3,700	2,673	72.2%	41	29	70.7%	25	20	80.0%

Table B-1

Sample Sizes for Access Indicators (continued)

8. ANTI-HYPERTENSIVE FOLLOW-UP RATE

	Fee-For-Service			HCD			MGD		
	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate
Total				3,078	2,864	93.0%			
Age 65-74				1,622	1,495	92.2%			
Age 75-84				1,179	1,106	93.8%			
Age 85 and older				277	273	98.6%			

9. ANTI-DEPRESSANT FOLLOW-UP RATE

	Fee-For-Service			HCD			MGD		
	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate
Total				1,121	1,045	93.2%			
Age 65-74				627	592	94.4%			
Age 75-84				407	373	91.6%			
Age 85 and older				87	80	92.0%			

10. RATE OF POST-HOSPITAL FOLLOW-UP FOR MYOCARDIAL INFARCTION

1994

	Fee-for-Service			HCD			MGD		
	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate
Total	2,994	2,222	74.2%	84	76	90.5%	32	30	93.8%
Age 65-74	1,241	970	78.2%	48	44	91.7%	17	16	94.1%
Age 75-84	1,353	1,007	74.4%	31	28	90.3%	10	9	90.0%
Age 85 and older	400	245	61.2%	5	4	80.0%	5	5	100.0%

1995

	Fee-for-Service			HCD			MGD		
	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate
Total	2,948	2,138	72.5%	78	71	91.0%	36	34	94.4%
Age 65-74	1,264	973	77.0%	33	32	97.0%	24	23	95.8%
Age 75-84	1,266	917	72.4%	35	33	94.3%	9	8	88.9%
Age 85 and older	418	248	59.3%	10	7	70.0%	3	3	100.0%

Table B-1

Sample Sizes for Access Indicators (continued)

11. RATE OF POST-HOSPITAL FOLLOW-UP FOR DEPRESSION

1994

	Fee-for-Service			HCD			MGD		
	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate
Total	963	628	65.2%	12	8	66.7%	12	8	66.7%
Age 65-74	364	246	67.6%	9	6	66.7%	8	6	75.0%
Age 75-84	472	309	65.5%	3	2	66.7%	4	2	50.0%
Age 85 and older	127	73	57.5%	0	0		0	0	

1995

	Fee-for-Service			HCD			MGD		
	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate	Sample	Number with a visit	Rate
Total	895	595	66.5%	17	12	70.6%	5	5	100.0%
Age 65-74	377	258	68.4%	12	11	91.7%	4	4	100.0%
Age 75-84	407	261	64.1%	5	2	40.0%	1	1	100.0%
Age 85 and older	111	76	68.5%	0	0		0	0	

Table B-1

Sample Sizes for Access Indicators (continued)

12. RATE OF FOLLOW-UP FOR ABNORMAL MAMMOGRAM

	Fee-For-Service			HCD			MGD		
	Sample	Number with Follow-up	Rate	Sample	Number with Follow-up	Rate	Sample	Number with Follow-up	Rate
Total				76	67	88.2%			
Age 65-74				45	42	93.3%			
Age 75-84				28	22	78.6%			
Age 85 and older				3	3	100.0%			

13. RATE OF BREAST CANCER ONCOLOGY FOLLOW-UP

	Fee-For-Service			HCD			MGD		
	Sample	Number with a Visit	Rate	Sample	Number with a Visit	Rate	Sample	Number with a Visit	Rate
Total				162	115	71.0%			
Age 65-74				90	69	76.7%			
Age 75-84				55	39	70.9%			
Age 85 and older				17	7	41.2%			

Table B-1

Sample Sizes for Access Indicators (continued)

14. POPULATION BASED RATE OF LENS REPLACEMENT

1994

	Fee-for-Service			HCD			MGD		
	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per1000)
Total	363,481	13,482	37.09	8,764	231	26.36	4,196	75	17.87
Age 65-74	181,762	4,632	25.48	5,829	106	18.18	2,535	26	10.26
Age 75-84	140,436	6,911	49.21	2,589	104	40.17	1,389	37	26.64
Age 85 and older	41,283	1,939	46.97	346	21	60.69	272	12	44.12

1995

	Fee-for-Service			HCD			MGD		
	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per1000)	Sample	Number with a procedure	Rate (per1000)
Total	325,984	12,623	38.72	9,075	260	28.65	4,319	67	15.51
Age 65-74	164,602	4,743	28.81	5,769	119	20.63	2,633	27	10.25
Age 75-84	126,472	6,404	50.64	2,928	114	38.93	1,394	30	21.52
Age 85 and older	34,910	1,476	42.28	378	27	71.43	292	10	34.25

Table B-1

Sample Sizes for Access Indicators (continued)

15. POPULATION BASED RATE OF HIP AND KNEE REPLACEMENT

1994

	Fee-for-Service			HCD			MGD		
	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per1000)
Total	363,481	2,393	6.58	8,764	53	6.05	4,196	30	7.15
Age 65-74	181,762	1,203	6.62	5,829	34	5.99	2,535	28	7.49
Age 75-84	140,436	1,058	7.53	2,589	18	6.95	1,389	10	7.20
Age 85 and older	41,283	132	3.20	346	1	2.89	272	2	7.35

1995

	Fee-for-Service			HCD			MGD		
	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per1000)	Sample	Number with a procedure	Rate (per1000)
Total	325,984	2,258	6.93	9,075	50	5.51	4,319	37	8.57
Age 65-74	164,602	1,226	7.45	5,769	28	4.85	2,633	22	7.49
Age 75-84	126,472	906	7.16	2,928	19	6.49	1,394	14	10.04
Age 85 and older	34,910	126	3.61	378	3	7.94	292	1	3.42

Table B-1

Sample Sizes for Access Indicators (continued)

16. POPULATION BASED RATE OF CORONARY REVASCULARIZATION

1994

	Fee-for-Service			HCD			MGD		
	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per1000)
Total	363,481	3,027	8.33	8,764	74	8.44	4,196	20	4.77
Age 65-74	181,762	1,889	10.39	5,829	53	9.09	2,535	16	6.31
Age 75-84	140,436	1,064	7.58	2,589	21	8.11	1,389	4	2.88
Age 85 and older	41,283	74	1.79	346	0	0.00	272	0	0.00

1995

	Fee-for-Service			HCD			MGD		
	Sample	Number with a procedure	Rate (per 1000)	Sample	Number with a procedure	Rate (per1000)	Sample	Number with a procedure	Rate (per1000)
Total	325,984	2,894	8.88	9,075	67	7.38	4,319	19	4.40
Age 65-74	164,602	1,820	11.06	5,769	36	6.24	2,633	16	6.08
Age 75-84	126,472	1,011	7.99	2,928	30	10.25	1,394	3	2.15
Age 85 and older	34,910	63	1.80	378	1	2.65	292	0	0.00

Table B-1

Sample Sizes for Access Indicators (continued)

17. NEW ENROLLEE VISIT RATE

	Fee-For-Service			HCD			MGD		
	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate
Total				750	554	73.9%	750	365	48.7%
Age 65-74				464	346	74.6%	440	194	44.1%
Age 75-84				224	163	72.8%	248	133	53.6%
Age 85 and older				62	45	72.6%	62	38	61.3%

18. ANNUAL VISIT RATE

	Fee-For-Service			HCD			MGD		
	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate	Sample	Number with A Visit	Rate
Total	325,984	288,083	88.4%	500	470	94.0%	500	454	90.8%
Age 65-74	164,602	141,602	86.0%	281	267	95.0%	261	234	89.7%
Age 75-84	126,472	114,562	90.6%	178	163	91.6%	179	166	92.7%
Age 85 and older	34,910	31,919	91.4%	41	40	97.6%	60	54	90.0%

Appendix C

HPHC Enrollment File Layout

EMOGRAPHIC DOWNLOAD DATA DICTIONARY - OUTPUT ORDER

FIELD NAME	SIZE	POSITION	TYPE	DESCRIPTION
ENCNTR	1	1	C	"D" FOR DEMOGRAPHIC
TAPEID	3	2-4	C	TAPE ID #
INPUTMRN	8	5-12	C	UNIT # FROM INPUT LIST
CURRMRN	8	13-20	C	CURRENT UNIT #
FAMNUM	9	21-29	C	FAMILY #
DOB	8	30-37	N	DATE OF BIRTH
ZIPCODE	5	38-42	C	ZIP CODE
ORGEFF	6	43-48	N	ORIGINAL EFFECTIVE DATE
PREEFF	6	49-54	N	EFFECTIVE DATE PRECEEDING TIME WINDOW
PREGRP	6	55-60	C	GROUP CODE PRECEEDING TIME WINDOW
PREDIV	3	61-63	C	DIVISION CODE PRECEEDING TIME WINDOW
PREDUAL	3	64-66	C	DUAL DIVISION CODE PRECEDING TIME WINDOW
PREBEN	4	67-70	C	BENEFIT PACKAGE (COVERAGE CODE) PRECEEDING TW
PRECOV	4	71-74	C	COVERAGE MODIFIER PRECEEDING TIME WINDOW
PREDRUG	1	75	C	PRE-PAID DRUG BENEFIT (Y/N) PRECEEDING TW
PREDEP	2	76-77	C	DEPENDENCY CODE PRECEEDING TIME WINDOW
PRECONT	1	78	C	CONTRACT TYPE PRECEEDING TIME WINDOW
EFFDATE	6	79-84	N	EFFECTIVE DATE IN TIME WINDOW
GRPCODE	6	85-90	C	GROUP CODE IN TIME WINDOW
VISION	3	91-93	C	DIVISION CODE IN TIME WINDOW
UALDIV	3	94-96	C	DUAL DIVISION CODE IN TIME WINDOW
BVCODE	4	97-100	C	BENEFIT PACKAGE (COVERAGE CODE) IN TW
COVMOD	4	101-104	C	COVERAGE MODIFIER IN TIME WINDOW
DRUGBEN	1	105	C	PRE-PAID DRUG BENEFIT (Y/N) IN TIME WINDOW
DEPCODE	2	106-107	C	DEPENDENCY CODE IN TIME WINDOW
CONTRACT	1	108	C	CONTRACT TYPE IN TIME WINDOW
CONTMON	6	109-114	N	CONTINUOUS MONTHS UP TO TIME WINDOW
MEMBMON	6	115-120	N	MEMBER-MONTHS IN TIME WINDOW
GENDER	1	121	C	MEMBER'S SEX
RACE	2	122-123	C	MEMBER'S RACE CODE(S)
PMD	4	124-127	C	PRIMARY MD
PNP	4	128-131	C	PRIMARY NP
HOSP	3	132-134	N	# OF HOSPITALIZATIONS ARCHIVED
TOTHOSP	3	135-137	N	TOTAL # OF HOSPITALIZATIONS
OLDREC	8	138-145	C	ORIGINAL RECORD NUMBER

HCD Internal Medicine Encounter Form

HCHP INTERNAL MEDICINE ENCOUNTER FORM

4) SITE OF ENCOUNTER

DC ____ BOSTON
BA ____ BRAINTREE
BUR ____ BURLINGTON
B ____ CAMBRIDGE
CH ____ CHELMSFORD
CO ____ COPLEY
C ____ KENMORE
MA ____ MEDFORD
PA ____ PEABODY
QU ____ QUINCY
SV ____ SOMERVILLE
WA ____ WATERTOWN
W ____ WELLESLEY
WR ____ WEST ROXBURY
H ____ BI
Y ____ B/W
E ____ CHMC
J ____ HOUSE CALL
K ____ OTHER:____

5) TYPE OF ENCOUNTER

A ____ SCHEDULED
B ____ SAME DAY
C ____ TELEPHONE
W ____ DNK/CANCELLED
G ____ IN-PATIENT
H ____ EW
I ____ NON-ENCOUNTER
O ____ LETTER SENT

NAME:

UNIT #:

DOB:

DATE:

PROV: CODE:

M ____ HOSPITAL DISCHARGE SUMMARY: specify
Primary diagnosis for input:_____
Admission date:____/____/____

6) EW or Hosp. Visit Approved? ____Yes ____No

PLEASE USE RED INK

PERSONAL BACKGROUND/DEMOGRAPHIC

PLEASE USE RED INK

FOR USE BY PRIMARY PROVIDER ONLY-Any previous entry will be overwritten if new information is indicated in any of the fields below.

7) **PRIMARY MD:**_____

9) **PRIMARY RN:** _____

9) RACE A ____ Caucasian B ____ Black C ____ Spanish-Speaking D ____ Other _____ E ____ Asian

10) MARITAL STATUS: A ____ Single B ____ Married C ____ Widowed D ____ Separated E ____ Divorced F ____ Cohab

11) NO. CHILDREN: _____

12) OCCUPATION: _____

39) EMERGENCY TELEPHONE NO _____

38) PERSONAL BACKGROUND _____

ADMINISTRATIVE DATA

40) DISPOSITION (*choose one or more - free text allowed with each choice*)

Return visit with_____in

E ____ Patient to call MD
F ____ MD to call Patient
I ____ Other:_____
G ____ Patient to call RN
H ____ RN to call Patient

A ____ Days
B ____ Weeks
C ____ Months
D ____ PRN

42) INTERNAL HCHP CONSULTATION(S)

Referred to:	Referred to:
Specialty (REQUIRED): _____	Specialty (REQUIRED): _____
Provider (optional): _____	Provider (optional): _____
DX Code(s) (REQUIRED): _____	DX Code(s) (REQUIRED): _____

92) ____ SEND CONSULTATION SUMMARY TO: (*Simple check sends to primary provider*)
If summary is to be sent to additional provider please indicate
Prov.: _____ Prov. Code: _____
Prov.: _____ Prov. Code: _____

149) Owns TTY Telephone for the deaf?____Yes ____Discontinued

46) DX codes for future extended output:_____

47) ____ Review of encounter (7 to 10 days) 48) ____ Long-term follow-up important (90 days)

54) ____ Paper chart required at next visit

OBJECTIVE DATA

64) BLOOD PRESSURE (*check lg cuff if indicated*)

RIGHT		LEFT	
Lying	____lg cuff	____	____lg cuff
Sitting	____	____	
Standing	____	____	

60) HEIGHT _____
61) WEIGHT _____lbs.
62) PULSE _____/min.
68) RESP. RATE _____/min.
63) TEMP. _____°F
____1) oral ____2) rect. ____3) axil

MASTER SYNONYM LIST

TO ADD MASTER SYNONYM LIST (*To join together existing codes which refer to the same problem*)

Master Code_____ Problem name_____

Subsidiary Synonym(s) (maximum of five)
Code_____ Problem name_____
Code_____ Problem name_____
Code_____ Problem name_____
Code_____ Problem name_____
Code_____ Problem name_____

TO KILL EXISTING MASTER SYNONYM (*To delete existing list*) Master Code_____

Problem Name_____

PLEASE USE RED INK

DIAGNOSES AND PROBLEMS (Dx)

PLEASE USE RED INK

M = Major, **O** = Omit from Status Report, **P** = Presumptive, **S/P** = Status Post, **R/O** = Rule Out
I = Inactive, **H** = History of, **✓** = Minor

A600	IHA	1. skin nl	2. eyes nl	3. ENT nl	4. thyr nl	5. lungs nl	6. cardiac nl	7. vasc nl	
A800	PHR	8. abd nl	9. breast nl	10. GU nl	11. rectal nl	12. musc/skel nl	13. neuro nl	19. nodes nl	

HEALTH HABITS (Providers. Indicate Smoking Therapies on Pg 4)

NOTES: _____

A062	Current Smoker (Frequency) _____
A063	Never Smoker
A064	Former Smoker: Yrs since quitting: _____
P106	Alcohol Use (Frequency) _____
T050	Exercise (Frequency) _____
D307	Seatbelt Use (Frequency) _____
A178	Case Reviewed With Dr.: _____
A014	Abnormal Physical Finding (Specify)

GENERAL

A020	Abnormal test result
A990	Dx Deferred
A802	Exam for certificate
A810	Health education
A177	HIV health education
Q137	HIV Testing Performed
A003	Immunization
A801	No demonstrable disease (explain)
A019	Positive family Hx (specify) _____
A128	Rx refill only
A803	Test results only

DRUG REACTIONS (Specify All Drugs & Reactions)

A118	Drug allergy status _____ 2) None known
A145	Drug intolerance _____

SYSTEMIC

A991	Fatigue
A117	Viral illness
A992	Weight loss

TRAUMA (STATE SITE IN FREE TEXT)

N045	Contusion
C132	Burn
O300	Head Trauma
C270	Laceration
C484	Puncture wound
N014	Trauma, other

SKIN

C408	Abscess
B420	Acne vulgaris
C260	Actinic keratosis (Senilis)
C150	Cellulitis
C162	Contact dermatitis
C160	Dermatitis (unknown etiology)
C183	Eczema
C220	Herpes simplex
C230	Herpes zoster (shingles)
C306	Lipoma
C330	Nevus
C337	Paronychia
C492	Pruritus
C340	Psoriasis
C165	Seborrheic dermatitis
C430	Seborrheic keratosis
C166	Stasis dermatitis
C453	Tinea cruris
C191	Tinea pedis (Athlete's Foot)
C375	Tinea versicolor
C370	Unicaria
C441	Verruca plantaris (Plantar Warts)
C440	Verruca vulgaris (Warts)

EYE

D410	Cataract
D525	Conjunctivitis
D431	Corneal abrasion
D007	Foreign body / eye
D330	Glaucoma
D450	Iritis
D114	Stye (Hordeolum)

ENT

E100	Cerumenosis (earwax)
E230	Epistaxis
E173	Hearing loss
E130	Labyrinthitis
E120	Otitis externa
E153	Otitis media, serous
E154	Otitis media, suppurative
E410	Pharyngitis
E408	Pharyngitis, strep (by culture)
E250	Rhinitis
E252	Rhinitis, allergic
E260	Sinusitis
E401	Tonsillitis

THYROID

B210	Goiter
B151	Hyperthyroidism
B152	Hypothyroidism
B153	Thyroid nodule(s)

ENDOCRINE METABOLIC

B120	Diabetes Mellitus
N011	Gout
B160	Hypercholesterolemia
B805	Hyperlipoproteinemia
L180	Impotence
A150	Obesity

RESPIRATORY

G100	Asthma
G121	Bronchitis, acute
G122	Bronchitis, chronic
G261	C O L D
G992	Cough
G993	Dyspnea (shortness of breath)
G220	Pneumonia (state variety) _____
G249	Positive PPD
G270	URI

CARDIOVASCULAR

I120	Aortic Stenosis
I136	Arrhythmia
I131	Atrial fibrillation
G991	Chest pain
I160	Congestive heart failure
I099	Coronary artery disease
I127	Ectopic beats
J110	Hypertension
I971	Mitral valve prolapse
I270	Myocardial infarction
I211	Murmur, systolic
I102	Palpitations
Q175	Peripheral Vascular Disease
I105	Tachycardia
J130	Thrombophlebitis
J140	Varicose veins

HEMATOLOGY / A.I.D.S.

Q108	Acquired Immune Deficiency Syndrome (A I D S)
Q136	A I D S -related complex (A R C)
Q110	Anemia
Q135	HIV infection
Q140	Infectious mononucleosis
Q118	Iron deficiency anemia
Q183	Leukopenia
Q302	Lymphadenopathy
Q131	Sickle cell trait
Q133	Thalassemia trait
Q203	Thrombocytopenia

	K103	Alcoholic hepatitis
	S/P Y459	Appendectomy
	K261	Cholecystitis
	S/P Y536	Cholecystectomy
	K403	Cholelithiasis
	K132	Colitis, ulcerative
	K311	Colon Polyp
	S271	Constipation
	K340	Crohn's Disease (Regional Enteritis)
	K150	Diarrhea
	K161	Diverticulitis
	K160	Diverticulosis
	K998	Dyspepsia
	K180	Esophagitis
	K110	Functional GI complaints
	K210	Gastritis
	K220	Gastroenteritis
	K114	GI bleeding
	K230	Hemorrhoids
	K270	Hepatitis _____1) Type A _____2) Type B _____3)Type C

	K241	Esophageal (Hiatus) hernia
	K401	Inguinal hernia
	K136	Irritable Bowel Syndrome
	K280	Pancreatitis
	K115	Peptic ulcer disease
	K910	Normal rectal exam _____1) Hemoccult cards given

	K113	Rectal bleeding

	Y401(R)	Anoscopy
	W013(T)	Sigmoidoscopy (Informed consent may be required)
	Y150(T)	Stool hematest_____Pos_____Neg

BREAST

	H190	Normal breast exam ___1) SBE Taught___2) SBE Reviewed
	H107	Fibrocystic breast changes
	H112	Breast lump: upper, inner quadrant t) size ____cm R L
	H111	Breast lump: upper, outer quadrant 1) size ____cm R L
	H109	Breast lump: lower, inner quadrant 1) size ____cm R L
	H114	Breast lump: lower, outer quadrant 1) size ____cm R L
	H113	Breast lump: Other (specify site)_____ R L
	H108	Mammogram Ordered
	H106	Abnormal Mammogram

GYNECOLOGY

	M137	Routine GYN exam ____ 1) ext. genitalia nl ____ 2) cervix nl ____ 3) vag nl ____ 4) adnexa nl ____ 5) Pap done ____ 6) uterus nl

	M019	Abnormal Pap Smear
	M119	Amenorrhea
	M124	Cervicitis
	M135	Dysfunctional bleeding (metrorrhagia)
	M130	Dysmenorrhea
	M206	Endometriosis
	M320	Family planning
	M116	Fibroids, Uterine
	M133	Hypermenorrhea (Menorrhagia)
	S/P Y720	Hysterectomy
	M995	Infertility
	M140	Menopausal Syndrome ____ 1) Hormone replacement therapy: Risk/Benefits Discussed
	M136	Oligomenorrhea
	S/P Y701	Oophorectomy
	M114	Ovarian cyst
	M150	Pelvic Inflammatory Disease
	M175	Pelvic mass
	M243	Pelvic pain
	M200	Pregnancy
	M160	Premenstrual tension/syndrome
	S/P Y372	Tubal ligation
	M996	Vaginitis ____ 1) Whiff Test ____ 2) pH
	B236(T)	Wet Prep ____ Pos ____ Neg

	L140	Epididymitis
	L993	Hematuria
	L190	Kidney stones (Nephrolithiasis)
	L118	Normal testicular exam _____1) TSE taught
	L222	Prostatitis
	B170	Proteinuria
	L230	Pyelonephritis
	L101	Urinary Tract Infection (UTI)

VENEREAL

	M172	Condyloma acuminatum
	L160	Gonorrhea
	C235	Herpes progenitalis
	L290	Urethritis
	L291	Urethritis, Non-specific
	L250	Syphilis

MUSCULO-SKELETAL

	N010	Arthritis
	N020	Bursitis
	N066	Carpal Tunnel Syndrome
	N033	Cervical radiculitis
	N061	Disc disease, cervical
	N261	Disc disease, lumbar
	N090	Fracture
	N476	Ganglion
	N145	Joint effusion
	N108	Joint pain
	N992	Low back pain
	N987	Musculo-skeletal pain
	N013	Osteoarthritis
	N140	Osteoporosis
	N082	Plantar Fasciitis
	N016	Rheumatoid arthritis
	N170	Sprain
	N181	Tendonitis

NEUROLOGIC

	G150	Cerebrovascular Accident (CVA)
	E125	Dizziness
	G991	Headache (undifferentiated)
	G190	Migraine headache
	G124	Seizures
	G191	Tension headache
	G127	Transient Ischemic Attack (TIA)

PSYCHOSOCIAL

	P100	Alcoholism
	P011	Anxiety
	P120	Depression
	P549	Substance abuse/dependence
	P600	Problem of living
	P302	Acute situational disturbance
	P303	Chronic situational disturbance

CANCER

	H100	Carcinoma (specify)_____
	H101	Carcinoma of breast
	K123	Carcinoma of colon
	G130	Cancer lung
	L221	Cancer of prostate

FREE TEXT COMMENTS RE: DIAGNOSES & PROBLEMS

Code # Text

_____ _____

_____ _____

_____ _____

PRINCIPAL DIAGNOSIS FOR THIS ENCOUNTER

The Principal Diagnosis listed in this section should also be listed in the Diagnosis section of this form
(DO NOT WRITE ANY FREE TEXT IN THIS SECTION)

PRINCIPAL DIAGNOSIS: _____ or _____
(DX Code) (DX Text)

PLEASE USE RED INK

OFFICE CONSULTATIONS/OFFICE VISITS (RA)

Please do not free text on Consultation and Visit Codes

Consultation and Visit Codes will be suppressed on Standard Record Summaries.

PLEASE USE RED INK

NEW PT. VISIT

T335	L1 (Prob foc. HX & Exam, Strtfrwd Dec)
T336	L2 (Expand Prob HX & Exam, Strtfrwd Dec)
T337	L3 (Detailed HX & Exam, Low Complex Dec)
T338	L4 (Compre HX & Exam, Mod Complex Dec)
T339	L5 (Compre HX & Exam, High Complex Dec)

ESTABLISHED PT. VISIT

T340	L1 (Minimal Prob, May Not Req MD)
T341	L2 (Prob foc. HX & Exam, Strtfrwd Dec)
T342	L3 (Expand Prob HX & Exam, Strtfrwd Dec)
T343	L4 (Detailed HX & Exam, Mod Complex Dec)
T344	L5 (Compre HX & Exam, High Complex Dec)

PHONE CONSULT/MED MGI

T462	Simple/Brief
T463	Intermediate
T464	Lengthy/Complex

PREVENTIVE COUNSELING

T012	15 Minutes
T013	30 Minutes

THERAPIES (Rx)

✓ = Active I = Inactive O = Omit from Status Report and Standard Record Summary

PULMONARY FUNCTION TEST (Rx)

(Inputters: Please include "Liters/min." as free text.)

Y155 PEAK FLOW _____ Liters/min.

_____ A) 100% expected value for age, height and sex

_____ B) Patient's best ever

_____ C) Pretreatment

_____ D) Post three sympathomimetic treatments

T900 Oxygen Saturation, By Oximetry

PRESCRIPTIONS

D107	Atenolol (Tenormin)
H147	Cimetidine (Tagamet)
D111	Digoxin (Lanoxin)
D160	Diltiazem (Cardizem)
F126	Furosemide (Lasix)
I237	Glipizide (Glucotrol)
I238	Glyburide (Micronase, Diabeta)
F132	Hydrochlorothiazide (Hydrodiuril) (HCTZ)
I122	Insulin ___ NPH ___ Regular ___ Lente
D180	Lisinopril (Zestril, Prinivil)
D143	Lopressor, (Metoprolol)
D144	Nifedipine (Procardia, Adalat)
E142	Phenobarbital
E171	Phenytoin (Dilantin)
I111	Prednisone
D152	Propranolol (Inderal)
H206	Ranitidine (Zantac)
J133	Theodur
J109	Theophylline Prep (specify) _____
I355	Tolazamide (Tolinase)
D167	Verapamil (Calan, Isoptin)
C119	Warfarin Sodium (Coumadin)

OVER THE COUNTER

E116	Acetaminophen (Tylenol)
G115	Actifed
F143	Afrin
H110	Antacids (specify) _____
E111	Aspirin
F149	Calcium Carbonate
M272	Clotrimazole ___ 1 topical crm (Lotrimin) ___ 2 topical sol (Lotrimin) ___ 3 vag crm (Gyne-Lotrimin) ___ 4 vag tab (Gyne-Lotrimin
A110	Diphenhydramine HCl (Benadryl)
E098	Ibuprofen (Advil, Motrin)
A132	Meclizine (Antivert)
H133	Metamucil
J110	Pseudoephedrine (Sudafed)
M139	Tolnaftate (Tinactin)

SYMPTOMATIC, Etc.

T653	Application of cold locally
T654	Application of heat locally
S101	Collar
R305	Counseling
R077	Crutches
V121	Diet Counseling
R014	Gargle
M992	Lozenges, sore throat
R021	Smoking Counseling
R022	Smoking, Referred to program
R028	Soaks
R001	Symptomatic Rx (specify) _____

PRESCRIPTION INFORMATION

CODE	DRUG	STRENGTH	QUAN.	# REFILLS	DIRECTIONS

PLACE Rx PAD STICKERS HERE (Do not cover hand-written text)

Rx 1

Rx 2

Rx 3

IMMUNIZATIONS AND TESTS (Rx)

		MF or H	Lot or Date	VAD
Q107	Haemophilus Vac (B-Capsa)			
Q186	MMR (1)			
Q160	Rubella Vaccine			
Q101	Td (Adult)			
Q130	Tetanus Toxoid			
Q156	Hepatitis B Vac (Recombivax-HB)			
Q060	Flu Vaccine			
Q201	Gamma Globulin (Immune Serum Globulin)			

		IMP	POS	NEG
Q157	Hepatitis B Vac (Engenix-B)			
Q200	Cholera Vaccine			
Q185	Pneumococcal Vaccine			
Q301	PPD 1st Strength-1TU			
Q302	PPD Int. Strength-5TU			
Q055	Tine Test			
Q190	Typhoid Vaccination			
	Other			

HCD Encounter Data File Layout

ENCOUNTER DOWNLOAD DATA DICTIONARY - OUTPUT ORDER

FIELD NAME	SIZE	POSITION	TYPE	DESCRIPTION
ENCNTR	1	1	C	"E" FOR ENCOUNTER, "F" FOR CONTINUATION
TAPEID	3	2-4	C	TAPE ID #
INPUTMRN	8	5-12	C	UNIT # FROM INPUT LIST
CURRMRN	8	13-20	C	CURRENT UNIT #
VISDATE	6	21-26	N	VISIT DATE
VISPROV	4	27-30	C	VISIT PROVIDER #1
SPEC	5	31-35	C	SPECIALTY
VISPROV2	4	36-39	C	VISIT PROVIDER #2
SPEC2	5	40-44	C	SPECIALTY
SITE	3	45-47	C	SITE
TYPE	1	48	C	TYPE
OLDREC	8	49-56	C	OLDREC - ORIGINAL RECORD NUMBER
DOB	8	57-64	N	DATE OF BIRTH
GENDER	1	65	C	MEMBER'S SEX
RACE	2	66-67	C	MEMBER'S RACE CODE(S)
PMD	4	68-71	C	PRIMARY MD
ENCMRN	8	72-79	C	ENCMRN - MRN ON DATE OF ENCOUNTER
ENCHC	2	80-81	C	ENCHC - HC ON DATE OF ENCOUNTER
DCODE1	4	82-85	C	D-CODE 1
DSTAT1	1	86	C	STATUS
DCODE2	4	87-90	C	D-CODE 2
DSTAT2	1	91	C	STATUS
DCODE3	4	92-95	C	D-CODE 3
DSTAT3	1	96	C	STATUS
DCODE4	4	97-100	C	D-CODE 4
DSTAT4	1	101	C	STATUS
DCODE5	4	102-105	C	D-CODE 5
DSTAT5	1	106	C	STATUS
DCODE6	4	107-110	C	D-CODE 6
DSTAT6	1	111	C	STATUS
DCODE7	4	112-115	C	D-CODE 7
DSTAT7	1	116	C	STATUS
DCODE8	4	117-120	C	D-CODE 8
DSTAT8	1	121	C	STATUS
DCODE9	4	122-125	C	D-CODE 9
DSTAT9	1	126	C	STATUS
DCODE10	4	127-130	C	D-CODE 10
DSTAT10	1	131	C	STATUS
NDCODES	3	132-134	C	TOTAL D-CODES
TCODE1	4	135-138	C	T-CODE 1
TSTAT1	1	139	C	STATUS
TCODE2	4	140-143	C	T-CODE 2
TSTAT2	1	144	C	STATUS
TCODE3	4	145-148	C	T-CODE 3
TSTAT3	1	149	C	STATUS
TCODE4	4	150-153	C	T-CODE 4
TSTAT4	1	154	C	STATUS

TCODE5	4	155-158	C	T-CODE 5
TSTAT5	1	159	C	STATUS
TCODE6	4	160-163	C	T-CODE 6
TSTAT6	1	164	C	STATUS
TCODE7	4	165-168	C	T-CODE 7
TSTAT7	1	169	C	STATUS
TCODE8	4	170-173	C	T-CODE 8
TSTAT8	1	174	C	STATUS
TCODE9	4	175-178	C	T-CODE 9
TSTAT9	1	179	C	STATUS
TCODE10	4	180-183	C	T-CODE 10
TSTAT10	1	184	C	STATUS
TCODE11	4	185-188	C	T_CODE 11
TSTAT11	1	189	C	STATUS
TCODE12	4	190-193	C	T_CODE 12
TSTAT12	1	194	C	STATUS
TCODE13	4	195-198	C	T_CODE 13
TSTAT13	1	199	C	STATUS
TCODE14	4	200-203	C	T_CODE 14
TSTAT14	1	204	C	STATUS
TCODE15	4	205-208	C	T_CODE 15
TSTAT15	1	209	C	STATUS
TCODE16	4	210-213	C	T_CODE 16
TSTAT16	1	214	C	STATUS
TCODE17	4	215-218	C	T_CODE 17
TSTAT17	1	219	C	STATUS
TCODE18	4	220-223	C	T_CODE 18
TSTAT18	1	224	C	STATUS
TCODE19	4	225-228	C	T_CODE 19
TSTAT19	1	229	C	STATUS
TCODE20	4	230-233	C	T_CODE 20
TSTAT20	1	234	C	STATUS
NTCODES	3	235-237	C	TOTAL T-CODES
RCODE1	4	238-241	C	R-CODE 1
RSTAT1	1	242	C	STATUS
RCODE2	4	243-246	C	R-CODE 2
RSTAT2	1	247	C	STATUS
RCODE3	4	248-251	C	R-CODE 3
RSTAT3	1	252	C	STATUS
RCODE4	4	253-256	C	R-CODE 4
RSTAT4	1	257	C	STATUS
RCODE5	4	258-261	C	R-CODE 5
RSTAT5	1	262	C	STATUS
RCODE6	4	263-266	C	R-CODE 6
RSTAT6	1	267	C	STATUS
RCODE7	4	268-271	C	R-CODE 7
RSTAT7	1	272	C	STATUS
RCODE8	4	273-276	C	R-CODE 8
RSTAT8	1	277	C	STATUS
RCODE9	4	278-281	C	R-CODE 9
RSTAT9	1	282	C	STATUS
RCODE10	4	283-286	C	R-CODE 10

RSTAT10	1	287	C	STATUS
NRCODES	3	288-290	C	TOTAL R-CODES
MHVIST	1	291	C	MENTAL HEALTH VISIT (A75)
SAVIST	1	292	C	SUBSTANCE ABUSE VISIT (A76)
WEIGHT	4	293-296	C	WEIGHT
TEMP	6	297-302	C	TEMP
BP	6	303-308	C	BP
PATCODE	8	309-316	C	PAT CODE
GRPCODE	6	317-322	C	GROUP CODE
DIVCODE	3	323-325	C	DIVISION CODE
BENCODE	4	326-329	C	BENEFIT PACKAGE (COVERAGE CODE)
COVMOD	4	330-333	C	COVERAGE MODIFIER
PPDRUG	1	334	C	PRE-PAID DRUG BENEFIT (Y/N)

HCD Outside Utilization File Layout

UEUSN Data Dictionary

Introduction

This section contains the UEUSN Data Dictionary. The columns in the dictionary have the following meanings:

- **UEUSN field name** - This is the name of the field in UEUSN. (Fields names remain constant across the Universal Extract and the health center files.) These are the names you use when creating reports in Decision Analyzer.
- **Report header name** - This column serves two purposes:
  1: It helps describe the UEUSN field name by linking it to the actual screen name.
  2: It is a name you can use as a heading in a printed report.
- **Size** - The length of the field. (This is the number of spaces the field takes up in the database and not necessarily the size of the field as it appears on the screen.)
- **Type** - C indicates the field is a character field. N is a numeric field. Only N fields can be used to calculate new fields in Decision Analyzer reports. There are fields that contain numbers, (e.g., contract number), that are defined as character fields because they cannot be used in numeric calculations.
- **Description** - This is a short definition of the field. Some fields include additional information, such as valid values.

Note: Fields preceded by a **C** *are specific to a claim; those preceded by a* **P** *are referral related. (There are exceptions to this rule.)*

Data Dictionary

The UEUSN Data Dictionary — sorted alphabetically by UEUSN field name — is shown below:

UEUSN Field Name	Report Header Name	Size	Type	Description
AUTH	Auth#	12	C	The referral number. Referral numbers consist of the referral date, site code, and a sequential number.
CADMDG	Admit Diag	6	C	The principle diagnosis at the time of admission. Admitting diagnoses appear on hospital claims.
CADMDT	Admit Date	4p	N	The date of admission for a hospital claim.
CAGE	Age	2p	N	The member's calculated age on the claim date of service. Age appears on both claim and referral screens.
CBP	BP	4	C	A member's assigned benefit package number.
CCASE	Case Field	12	C	This field may be used for the following: • To store remarks • ICD9 codes for ambulatory surgery claims can be entered here • The baby's diagnosis is entered here for OB delivery claims

UEUSN Data Dictionary (continued)

UEUSN Field Name	Report Header Name	Size	Type	Description
CCNTNO	Contract#	12	C	The member's contract number. Contract number is almost always the subscriber's social security number.
CCOUNT	Count	2p	N	The count of services on a medical claim or the number of days on a hospital claim. Decimal places are not allowed in the count field.
CDIAG	Diagnosis	6	C	The ICD9 diagnosis code for medical claims. (CDIAG1 is the equivalent field for hospital claims.)
CDIAG1	Diag1	6	C	The primary ICD9 discharge diagnosis code for hospital claims.
CDIAG2	Diag2	6	C	The secondary discharge diagnosis code for hospital claims.
CDIAG3	Diag3	6	C	The tertiary discharge diagnosis code for hospital claims.
CDIAG4	Diag4	6	C	Additional discharge diagnosis code for hospital claims.
CDIAG5	Diag5	6	C	Additional discharge diagnosis code for hospital claims.
CDISDT	Disch Date	4p	N	The discharge date for hospital claims. (An interim claim does not have a discharge date.)
CDOB	Mbr DOB	4p	N	The member's date of birth. (YYMMDD format)
CEXCD	EX Code	4	C	EX codes describe why a claim is pended or denied. Code descriptions can be looked up in the **EX** code set in Reference & Controls.
CFROM	From Date	4p	N	For medical claims this is the date of service. For hospital claims this is the bill start date, (the admit date except for interim claims).
CGROUP	Group#	12	C	The unique employer group number.
CHARGD	Amt Chgd	4p	N	Amount charged appears on claims screens. It is the amount charged **per service line**.
CHLTCT	Health Ctr	12	C	The member's HCHP health center code. Health center codes are stored in the **HC** code set in Reference & Controls. They are also listed on page 7-10.
CLC	Location	4	C	The location code identifies the type of institution in which a service was performed. Location codes are listed on page 7-13.
CLFLAG	Clm1st Flg	1	N	This flag is set to one of the following: • **1** for the first occurrence of a particular claim number • **0** for subsequent service lines

UEUSN Data Dictionary (continued)

UEUSN Field Name	Report Header Name	Size	Type	Description
CLMNUM	Claim#	12	C	Claim numbers consist of the following: • The receipt date of the claim in a YYMMDD format, (930104). • A four digit sequential number. The first claim received each day is assigned 0001. The last claim number indicates the number of claims received that day. (9301041024 - 1024 claims were received on 01/04/93.)
CLST	ST	2	C	The claim status (paid, denied, pended). Status codes are stored in the **ST** code set in Reference & Controls. They are listed on page 7-22.
CMDREC	Med Rec#	12	C	The member's unique HCHP medical record number.
CMEMCL	CL	4	C	The member's family classification code. These codes differentiate members on the same contract by identifying the relationship between the member and subscriber. The **CL** code set is contained on page 7-7.
CMEMNO	Mbr#	2	C	The member number is the two digit extension used with the contract number. Member numbers identify individual members on a contract. (Subscriber = 00, 01-spouse, 02-first child, 03-Second child, etc.)
CMOD	Modifier	2	C	Procedure modifiers are used to designate assistant surgeons, anesthesia units, or other services that have been altered by some special circumstances. These alter the original procedure code without changing its definition or code. Modifier codes are stored in the **M1** code set in Reference & Controls.
CNAME	Member Name	33	C	The member's name (first, middle, last). "Restricted" appears on employee records.
CNCOVD	Covd Days	2p	N	The number of days billed on an inpatient claim.
COCL	OCL	4	C	The ILR code that identifies the reason for an ILR pend or adjustment. (e.g., Medicare is primary, other insurance is primary, motor vehicle accident, etc. . .) ILR codes are used for coordination of benefits. They are listed on page 7-11.
CPAID	Amt Paid	4p	N	The dollar amount actually paid for a **service** line.

UEUSN Data Dictionary (continued)

UEUSN Field Name	Report Header Name	Size	Type	Description
CPCP	PCP	12	C	The Costar code, preceded by a P, of the member's primary care physician.
CPDTOT	Paid Claim Total	5p	N	The total amount paid on a claim.
CPRDT1	ICD9 Proc 1 Date	4p	N	The date the primary procedure was performed, YYMMDD. (Applies to hospital claims only.)
CPRDT2	ICD9 Proc 2 Date	4p	N	The date the secondary procedure was performed, YYMMDD. (Applies to hospital claims only.)
CPRDT3	ICD9 Proc 3 Date	4p	N	The date the tertiary procedure was performed, YYMMDD. (Applies to hospital claims only.)
CPROC	Procedure	7	C	The primary procedure code. (CPT4, UB82, HCPCS procedure codes.)
CPROC1	ICD9 Proc1	7	C	The primary ICD9.CM procedure code. (Applies to hospital claims only.)
CPROC2	ICD9 Proc2	7	C	The secondary ICD9.CM procedure code. (Applies to hospital claims only.)
CPROC3	ICD9 Proc3	7	C	The tertiary ICD9.CM procedure code. (Applies to hospital claims only.)
CSEX	Sex	4	C	The member's gender. (M - male, F - female)
CSVLIN	Svc Line#	2	C	The individual service line number within a claim.
CTHRU	Thru Date	4p	N	For medical claims this is the through service date. It is the discharge date on a final bill of a hospital claim. For interim bills, it is the thru date.
CTOCHG	Total Chgs	5p	N	The total charges for all service lines on a claim.
CTT	TT	4	C	The treatment type associated with a specific procedure code. These codes are stored in the **TT** code set in Reference & Controls. They are listed on page 7-24.
CTYPE	CP	2	C	The claim type code is one of the following: **HO** - inpatient **ME** - outpatient, SDC, or any professional charges
CUNITS	Units	3	C	The number of units for any type of service requiring a modifier.
PAR	AR	2	C	The referral type code identifies the type of service for which a member is being referred. (e.g., Inpatient - Obstetrics) AR codes are listed on page 7-3.

UEUSN Data Dictionary (continued)

UEUSN Field Name	Report Header Name	Size	Type	Description
PAS	AS	2	C	The extent of care code identifies the level of approval required for a referral. (e.g., benefit coordinator sign-off, clinician etc. . .) AS codes are listed on page 7-5.
PATTPV	Att Prov#	12	C	Attending providers only apply to hospital referrals. This is the provider number of the actual attending provider, if known.
PATTSP	Att Prov Sp	2	C	The attending provider's specialty code. (Hospital claims only.)
PCNTNO	Contract #	12	C	The member's contract number on a referral. Contract number is almost always the subscriber's contract number.
PHLTCT	Health Ctr	12	C	The member's HCHP health center code on a referral. Health center codes are stored in the **HC** code set in Reference & Controls. They are also listed on page 7-10.
PMDREC	Med Rec#	12	C	The member's unique HCHP medical record number on a referral.
PMEMNO	Mbr#	2	C	The member number is the two digit extension used with the contract number. Member numbers identify individual members on a contract. (Subscriber = 00, 01-spouse, 02-first child, 03-Second child, etc.)
PPRIM	Prim Diag	6	C	The member's principle diagnosis code when the referral was first entered.
PPROC1	ICD9 Proc1	7	C	Procedure code number 1 from hospital logs.
PPROC3	ICD9 Proc3	7	C	Procedure code number 3 from hospital logs.
PREFPV	Ref Prov#	12	C	On a medical referral this is the HCHP provider who ordered/referred a service. On a hospital referral it is the admitting provider.
PREFSP	Ref Prov SP	2	C	On a medical referral this is the ordering/ referring provider's specialty code. On a hospital referral it is the admitting provider's specialty code.
PREFTY	Auth Type	1	C	The referral type code is one of the following: • **H** - Hospital • **M** - Medical
PRFLAG	PC 1ST Flg	1	N	This flag is set to one of the following: • 1 on first occurrence of a particular referral • 0 on subsequent occurrences
PSITE	Referral Site	4	C	The three character abbreviation of the site from which a referral was generated.

UEUSN Data Dictionary (continued)

UEUSN Field Name	Report Header Name	Size	Type	Description
PSRVPV	Hosp Prov#	12	C	The facility to which a member has been referred.
PSRVSP	Hosp SP	2	C	The specialty code of the facility to which a member was referred. (For example, HO — Acute Care Hospital.) These codes are stored in the **SP** code set in Reference & Controls. They are listed beginning on page 7-18.
PTMPLT	Template Name	12	C	The template name. Templates authorize the services to be performed. *(Do not use the H or M preceding templates. These are outdated.)* Templates are listed beginning on page 7-28.
PTPRC1	Template Proc 1	7	C	The major or first service authorized by a template group of services. Only used on medical, ambulance and ER referrals. This code is passed to AMRS.
PTPRC2	Template Proc 2	7	C	The second service authorized by a template group of services. This code is manually input by CAG to authorize additional procedures because only one template can be used per referral. Only used on medical, ambulance and ER referrals. **Example:** CTHEAD is used as the template and CTABDOMEN/CTPLEVIS are also authorized. Cag needs to enter these two procedure codes and quantities.
PTPRC3	Template Proc 3	7	C	The third service authorized by a template group of services. (See example above.)
SRVPS	Serv PS	4	C	On a claim this is the servicing provider status code (PS code). It is passed to the referral as the referred to status code. **PS** codes are listed on page 7-17.
SRVPV	Serv Prov#	12	C	On a claim this is the provider number of the vendor providing service to the member. On a referral it is the referred to provider code.
SRVSP	Serv Prov SP	2	C	On a claim this is the servicing provider's specialty code. On a referral it is the referred to provider's specialty code. These codes are stored in the **SP** code set in Reference & Controls. They are listed on page 7-18.

MGD Claims File Layout

CLINIC HEADER FILE DATA DICTIONARY

Field	Name	Description	Type	Width	Format	Start Pos	Range
7	ACVST	Number of visits that actually occurred	P	3,0		39	
12	APRV1	Assigned Provider 1 - Copied from the E/B file. It is **unreliable** as a primary provider source. Sometimes it is the medical group acronym and PCP; example WMAPCP	C	6		65	
19	AUTHN	Authorization Number - **BLANK**	C	9		95	
6	AUVST	Number of visits that were authorized-**BLANK**	P	3,0		37	
25	COBTP	Coordination of Benefits Type - Parent IPACD acronym when applicable	C	2		125	
13	DIAG1	Diagnosis 1(ICD-9) - **is a required field.**	C	6	XXX.XX	71	See ICD-9 Code book.
14	DIAG2	Diagnosis 2(ICD-9) - is not a required field.	C	6	XXX.XX	77	See ICD-9 Code book.
8	ENRSN	Encounter reason - HCHP Codes for Type of Service - always eq '12' for clinic	C	2		41	See Appendix(ENRSN Code Sheet).
2	FORMN	Claim Number- automatically generated by the system. It consists of C followed by 7 numbers.	C	8		6	
17	GRPID	Employer Group on the service date	C	6		86	
29	INUSE	Record in Use Flag	C	1		148	
20	IPACD	Medical Group on the service date	C	2		104	Range '01' -'L2' See Appendix(HCHP Sites Code Sheet).
31	LOCSV	Location of Service-Medical groups can contract with APPs(Affiliated Physician Practices). The LOCSV code distinguishes whether the service occurred at the medical group or at the APP. LOCSV = 3 character medical group acronym.	C	3		151	
15	MBAGE	Member Age - is calculated based on the birth date and the service date to 1/10 of a year.	P	3,1		83	
3	MBRNO	Member Number on the service date - the groups enter it and it is verified when the claim is processed.	C	11		14	
16	MBSEX	Member Sex	C	1		85	'F' OR 'M'
28	OBCHN	Original Batch Number- batch number of the batch that includes the claim. It is a random number entered by the clinical supervisor. The first 2 characters represent the COB code(parent group of the IPA code).	C	6		142	
26	OENDT	Claim Entry Date - System Date	P	8,0	YYYYMMDD	127	
27	OROPR	Original Entry Operator- operator that loaded the tape or diskette to the batch file.	C	10		132	
9	PLCSV	Place of Service Codes - which designate where the service took place. In 7/93, HCHP switched to Medicare PLCSV codes, which are more specific than the HCHP homegrown codes were.	C	2		43	Range '11' - '99' See Appendix(Medicare PLCSV Code Sheet).

CLINIC HEADER FILE DATA DICTIONARY

Field	Name	Description	Type	Width	Format	Start Pos	Range
18	PLNCD	Plan Code - Benefit package at the time of the claim	C	3		92	
24	PLNTP	Plan Type - First position of the plan code, represents the broad category of coverage	C	1		124	
22	PRVAC	Provider's Account Number - provider's financial account number or claim number for the patient in the provider's data system.	C	11		110	
4	PRVNO	Provider Number - Service Provider, This directory is maintained by the accounting department.	C	6		25	See Appendix(MGD Sasified Files - HPROVP).
1	PSVDT	Primary Date of Service - service date associated with the claim.	P	8,0	YYYYMMDD	1	Example: 19910101
30	PTCTG	Physician Category - Linked to the provider type, A group category combines more than one specialty.	C	2		149	See Appendix(MGD Sasified Files - HPROVP).
10	PTYPE	Provider Type - Specialty of the service provider example- PHYS-OBGYN for obstetricians	C	10		45	See Appendix(MGD Sasified Files - HPROVP).
5	RFPRV	Referring Provider BLANK, since there was no referral.	C	6		31	
23	SBGRC	Subgroup Code - NOT USED	C	3		121	
21	USRFL	User Field - Always CLNC	C	4		106	
11	VNDNO	Vendor Number - Used for accounts payable purposes only, NOT APPLICABLE for Clinic	C	10		55	

CLINIC DETAIL FILE DATA DICTIONARY

Field	Name	Description	Type	Width	Format	Start Pos	Range
22	ADJST	Adjudication Status - Not Used	C	1		95	
15	AJRSN	Adjustment Reason - Based on the Clinic Fee Schedule	C	2		73	
10	ALWAM	Allowed Amount - Amount that HCHP allows payment for based on the Clinic Fee Schedule	P	7,2		56	
27	ALWQT	Allowed Procedure Quantity - not yet used, goes with the ALWAM. It will be used by the APPs.	P	2		118	
19	APPST	Accounts Payable Posting Date - Not Used	P	5		84	
9	BILAM	Billed Amount	P	7,2		52	
23	BKTST	Bucket Status - Not Used	C	1		96	
16	CMPCD	Company Code - Not Used	C	1		75	
11	COPAM	Copay Amount - Amount of the Member's Copay. It is a flat amount paid by the enrollee per visit or service regardless of the cost of the services provided. - Not Used	P	7,2		60	
2	FORMN	Claim Number- automatically generated by the system. It consists of C followed by 7 numbers.	C	8		6	
17	GLDST	General Ledger Distribution Code - Not Used	P	3		76	
5	MBRNO	Member Number on the service date - the groups enter it and it is verified when the claim is processed.	C	11		28	
21	NCRSN	Not Covered Reason - Not Used	C	2		93	
20	NCVAM	Not Covered Amount - Not Used	P	7,2		89	
13	NETAM	Net Amount - Portion of the billed amount that is reimbursed by HCHP.	P	7,2		68	
28	OBCHN	Original Batch Number- batch number of the batch that includes the claim. It is a random number entered by the clinical supervisor. The first 2 characters represent the COB code(parent group of the IPA code).	C	6		112	
24	OENDT	Claim Entry Date - Date record added	P	8,0	YYYYMMDD	97	
25	OROPR	Original Entry Operator- Original operator that loaded the tape or diskette to the batch file.	C	10		102	
14	PAYST	Pay Status - Always 'X'	C	1		72	
4	PCDCD	Procedure Code(CPT)	C	9		19	
8	PCDQT	Procedure Quantity - The definition of unit of service may vary by department.	P	3,0		50	
7	POSTD	Date Record Added	P	8,0	YYYYMMDD	14	
6	PRVNO	Provider Number - service provider - This file is maintained by the accounting dept.	C	6		39	
1	PSVDT	Primary Date of Service - service date associated with the claim.	P	8,0	YYYYMMDD	1	Example: 19930101
18	RCVDT	Receive Date for Claim - Date that the claim was received.	P	8,0	YYYYMMDD	79	
3	SSVDT	Specific Date of Service - Same as the primary date of service for clinic.	P	8,0	YYYYMMDD	14	Example: 19930101
12	WITAM	Withhold Amount	P	7,2		64	

Institutional Header File Data Dictionary

Field	Name	Description	Type	Width	Format	POS	Range
49	ACDYS	Actual Days - **Not Used?**	P	5,2		236	
7	ACVST	Length Of Stay - The discharge date - the admit date.	P	3,0		39	
1	ADMDT	Admission Date- Date that the patient was admitted.	P	8,0	YYYYMMDD	1	Example: 19910101
12	APRV1	Assigned Provider 1 - Copied from the E/B file. It is **unreliable** as a primary provider source. Sometimes it is the medical group acronym and PCP; example WMAPCP	C	6		65	
24	ATPHY	Attending Physician - **Blank** - Hospital MD codes on the claim form don't match the HCHP codes, so they cannot be entered.	C	6		123	
22	AUTHN	Authorization Number - Random number generated by the system. It is a unique key. One authorization may have only one claim, except when a newborn claim is paid off the mother's authorization.	C	9		113	
6	AUVST	Number of Visits that were authorized	P	3,0		37	
50	BIRTHW	Birth Weight - Grams	P	4,0		241	
23	CNTRC	Continuation Record Flag	C	1		122	
42	COBTP	Coordination of Benefits Type - Parent IPACD acronym when applicable	C	2		197	
13	DIAG1	Diagnosis 1(ICD-9)	C	6	XXX.XX	71	See ICD-9 Code Book.
14	DIAG2	Diagnosis 2(ICD-9)	C	6	XXX.XX	77	See ICD-9 Code Book.
19	DIAG3	Diagnosis 3(ICD-9)	C	6	XXX.XX	95	See ICD-9 Code Book.
30	DIAG4	Diagnosis 4(ICD-9)	C	6	XXX.XX	154	See ICD-9 Code Book.
31	DIAG5	Diagnosis 5(ICD-9)	C	6	XXX.XX	160	See ICD-9 Code Book.
26	DISDT	Discharge Date	P	8,0	YYYYMMDD	131	
35	DISST	Discharge Status	C	3		184	Range '01' - '42' See Appendix(DISST Code Sheet).
36	DRGCD	DRG Code - **Not Used?**	C	3		187	
8	ENRSN	Encounter Reason - HCHP codes for type of service These codes relate to benefit packages, service limitations and exclusions.	C	2		41	See Appendix(ENRSN Code Sheet).
2	FORMN	Claim Number- automatically generated by the system.	C	8		6	
17	GRPID	Employer group at the time of the service	C	6		86	
48	INUSE	Record in use flag	C	1		235	
25	IPACD	Medical group on the service date	C	2		129	Range '01'-'L2' See Appendix(HCHP Sites Code Sheet).
46	LCHGD	Last date that the claim was updated	P	8,0	YYYYMMDD	220	
47	LCHGO	Last change operator	C	10		225	
15	MBAGE	Member Age - is calculated based on the birth date and the service date to 1/10 of a year.	P	3,1		83	
3	MBRNO	Member Number on the service date - entered into authorization and used when the claim is entered.	C	11		14	
16	MBSEX	Member Sex	C	1		85	'F' OR 'M'
37	MEMFL	Memo Flag	C	1		190	
38	MMEDF	Major Medical Flag	C	1		191	
45	OBCHN	Original Batch Number- batch number of the batch that includes the claim.	C	6		214	

Institutional Header File Data Dictionary

Field	Name	Description	Type	Width	Format	POS	Range
43	OENDT	Claim Entry Date - Date that the claim is entered.	P	8,0	YYYYMMDD	199	
44	OROPR	Original Entry Operator - operator that loaded the tape to the batch file.	C	10		204	
9	PLCSV	Place of Service Codes - which designate where the service took place. In 7/93, HCHP switched to Medicare PLCSV codes, which are more specific than the HCHP homegrown codes were.	C	2		43	See Appendix(Medicare PLCSV Code Sheet).
18	PLNCD	Plan Code - Benefit package at the time of the claim	C	3		92	
40	PLNTP	Plan Type - First position of the plan code, represents the broad category of coverage.	C	1		193	
41	PPOEN	Entity	C	3		194	
39	PPROV	Participating Provider Flag	C	1		192	
28	PRVAC	Provider's Account Number - provider's financial account number for the patient in the provider's data system.	C	11		140	
4	PRVNO	Provider Number - Service Provider, This directory is maintained by the accounting department.	C	6		25	See Appendix(MGD Sasified Files - Hprovl).
10	PTYPE	Provider Type - Specialty of the service provider example- PHYS-OBGYN for obstetricians	C	10		45	See Appendix(MGD Sasified Files - Hprovl). Example:the PTYPE for hospitals is -INST-HOSPI
5	RFPRV	Referring Provider- Provider who referred the patient for services	C	6		31	See Appendix(MGD Sasified Files -Hprovl).
29	SBGRC	Subgroup Code	C	3		151	
20	SPRC1	Surgical Procedure Code 1(ICD-9)	C	6	XX.XX	101	See ICD-9 Code Book.
21	SPRC2	Surgical Procedure Code 2(ICD-9)	C	6	XX.XX	107	See ICD-9 Code Book.
32	SPRC3	Surgical Procedure 3(ICD-9)	C	6	XX.XX	166	See ICD-9 Code Book.
33	SPRC4	Surgical Procedure 4(ICD-9)	C	6	XX.XX	172	See ICD-9 Code Book.
34	SPRC5	Surgical Procedure 5(ICD-9)	C	6	XX.XX	178	See ICD-9 Code Book.
27	USRFL	User Field - INST	C	4		136	
11	VNDNO	Vendor Number - Is generally used for accounts payable purposes only. However, for PRVNO = '999999',(Unknown Provider), it can be used to identify the provider.	C	10		55	

INSTITUTIONAL DETAIL FILE DATA DICTIONARY

Field	Name	Description	Type	Width	Format	Start Pos	Range
28	**ADJST**	Adjudication Status -0=not, 1=manual - **Not Used**	C	1		108	
1	**ADMDT**	Admission Date	P	8,0	YYYYMMDD	1	Example: 19910101
15	**AJRSN**	Adjustment Reason	C	2		73	
10	**ALWAM**	Allowed Amount - Amount that HCHP allows payment for based on the Clinic Fee Schedule	P	7,2		56	
25	**APPST**	Accounts Payable Posting Date	P	8,0	YYYYMMDD	97	
19	**BECAT**	Benefit Category	C	3		81	
9	**BILAM**	Billed Amount - Amount that the vendor billed on the claim	P	7,2		52	
29	**BKTST**	Bucket Status, 0=not counted,1=counted - **Not Used**	C	1		109	
16	**CMPCD**	Company Code	C	1		75	
23	**COBPF**	COB Persue Flag	C	1		91	
11	**COPAM**	Copay Amount - Amount of the Member's Copay	P	7,2		60	
18	**CPRSN**	Copay Reason	C	2		79	
20	**CRBFL**	Credit Bank Flag	C	1		84	
22	**DCRSN**	Deductible Reason	C	2		89	
21	**DCTAM**	Deduct Amount	P	7,2		85	
2	**FORMN**	Claim Number- automatically generated by the system.	C	8		6	
17	**GLDST**	General Ledger Distribution Code	C	3		76	
30	**LCHGO**	Last Change Operator	C	10		110	
5	**MBRNO**	Member Number on the service date - entered into authorization and used when the claim is entered.	C	11		28	
27	**NCRSN**	Not Covered Reason - **Not Used**	C	2		106	
26	**NCVAM**	Not Covered Amount - **Not Used**	P	7,2		102	
13	**NETAM**	Net Amount - Portion of the billed amount tthat is reimbursed by HCHP.	P	7,2		68	
14	**PAYST**	Pay Status - Not Posted, Posted or Pended	C	1		72	0,1,5,6,7,8,9,N,X,E,F,G,H,I,J
4	**PCDCD**	Procedure Code(CPT or Revenue or HCPCS)	C	9		19	
8	**PCDQT**	Procedure Quantity	P	3,0		50	
7	**POSTD**	Due Date	P	8,0	YYYYMMDD	45	
6	**PRVNO**	Provider Number - Service Provider, This directory is maintained by the accounting department.	C	6		39	See Appendix(MGD Sasified Files - Hprovp).
24	**RCVDT**	Receive Date for Claim	P	8,0	YYYYMMDD	92	
3	**SSVDT**	Specific Date of Service - Date on which the specific procedure occurred.	P	8,0	YYYYMMDD	14	
12	**WITAM**	Withhold Amount - Medicare Paid Amount	P	7,2		64	

REFERRAL HEADER FILE DATA DICTIONARY

Field	Name	Description	Type	Width	Format	Start Pos	Range
7	ACVST	Number of Visits that actually occurred. The default visit count is 1.	P	3,0		39	
12	APRV1	Assigned Provider 1 - Copied from the E/B file, It is unreliable as a primary provider source. Sometimes it is the medical group acronym and PCP; example WMAPCP	C	6		65	
19	AUTHN	Authorization Number - Random number generated by the system. It is a unique key. One authorization may have multiple related claims.	C	9		95	
6	AUVST	Number of Visits that were authorized	P	3,0		37	
25	COBTP	Coordination of Benefits Type - Parent IPACD when applicable	C	2		125	
13	DIAG1	Diagnosis 1(ICD-9)	C	6	XXX.XX	71	See ICD-9 Code book.
14	DIAG2	Diagnosis 2(ICD-9)	C	6	XXX.XX	77	See ICD-9 Code book.
8	ENRSN	Encounter Reason - HCHP codes for type of service These codes relate to benefit packages, service limitations and exclusions.	C	2		41	See Appendix(ENRSN Code Sheet).
2	FORMN	Claim Number - automatically generated by the system.	C	6		6	
17	GRPID	Employer Group on the service date	C	8		86	
29	INUSE	Record in Use Flag	C	1		148	
20	IPACD	Medical Group on the Service Date	C	2		104	Range '01'-'L2' See Appendix(HCHP sites Code Sheet).
15	MBAGE	Member Age - is calculated based on the birth date and the service date to 1/10 of a year.	P	3,1		83	
3	MBRNO	Member Number on the service date - entered into authorization and used when the claim is entered.	C	11		14	
16	MBSEX	Member Sex	C	1		85	'F' OR 'M'
32	NEDCL#	NED Claim Number- new field added on 10/17/93, used to key in microfilm number for the New England Division PCN claims.	C	10		156	
28	OBCHN	Original Batch Number- Batch Number of the Batch that includes the claim.	C	6		142	
26	OENDT	Claim Entry Date - Date that the claim was entered.	P	8,0	YYYYMMDD	127	
27	OROPR	Original Entry Operator	C	10		132	
9	PLCSV	Place of Service Codes - which designate where the service took place. In 7/93, HCHP switched to Medicare PLCSV codes, which are more specific than the HCHP homegrown codes were.	C	2		43	Range '11' - '99'. See Appendix(Medicare PLCSV Code Sheet).
18	PLNCD	Plan Code - benefit package at the time of the claim.	C	3		92	
24	PLNTP	Plan Type - First position of the plan code, represents the broad category of coverage.	C	1		124	
22	PRVAC	Provider's Account Number - provider's financial account number for the patient in the provider's data system.	C	11		110	

REFERRAL HEADER FILE DATA DICTIONARY

Field	Name	Description	Type	Width	Format	Start Pos	Range
4	PRVNO	Provider Number - Service Provider, This directory is maintained by the accounting department.	C	6		25	See Appendix(MGD Sasified Files - Hprovp).
1	PSVDT	Primary Date of Service - Service date associated with the claim.	P	8,0	YYYYMMDD	1	Example: 19910101
30	PTCTG	Physician Category - Linked to the provider type, A group category combines more than one specialty.	C	2		149	
10	PTYPE	Provider Type - Specialty of the service provider example- PHYS-OBGYN for obstetricians	C	10		45	See Appendix(MGD Sasified Files - Hprovp).
31	RECDT	Receive Date for Claim - date that the claim is received. Claims are stamped with a date as they come in. The stamped date is entered by the claims operator into the RECDT field.	P	8,0	YYYYMMDD	151	
5	RFPRV	Referring Provider - Provider who referred the patient, is copied over from the Authorization file when the claim is entered.	C	6		31	See Appendix(MGD Sasified Files - Hprovp).
23	SBGRC	Subgroup Code - **NOT USED**	C	3		121	
21	USRFL	User Field - RFRL for referral, CLNC for Clinic	C	4		106	
11	VNDNO	Vendor Number - Used for accounts payable purposes only.	C	10		55	

REFERRAL DETAIL DATA DICTIONARY

Field	Name	Description	Type	Width	Format	Start Pos	Range
22	ADJST	Adjudication Status - 0=not, 1=manual	C	1		95	
15	AJRSN	Adjustment Reason	C	2		73	
10	ALWAM	Allowed Amount - Amount that HCHP allows payment for based on the vendor fee schedule(can be manually entered).	P	7,2		56	
19	APPST	Accounts Payable Posting Date	P	8,0	YYYYMMDD	84	
9	BILAM	Billed Amount - Amount that the vendor billed on the claim	P	7,2		52	
23	BKTST	Bucket Status, 0=not counted,1=counted - Not Used	C	1		96	
16	CMPCD	Company Code	C	1		75	
11	COPAM	Copay Amount - Amount of the Member's Copay	P	7,2		60	
25	CRLIN	Clinic/Referral Line- Since all PCN claims are entered into the Referral File, this is a way to distinguish between PCN claims and MGD Claims. C=Clinic and R=Referral. Any claim with CRLIN='C', is a PCN Clinic claim	C	1		102	
2	FORMN	Claim Number - automatically generated by the system.	C	8		6	
17	GLDST	General Ledger Distribution Code	C	3		76	
5	MBRNO	Member Number on the service date - the groups enter it and it is verified when the claim is processed.	C	11		28	
21	NCRSN	Not Covered Reason - **Not Used**	C	2		93	
20	NCVAM	Not Covered Amount - **Not Used**	P	7,2		89	
13	NETAM	Net Amount - Portion of the billed amount that is reimbursed by HCHP.	P	7,2		68	
14	PAYST	Pay Status - whether or not the bill has been posted or pended. Not posted=0,posted=1. If pended, may be C,6,7,9,etc.	C	1		72	
4	PCDCD	Procedure Code(CPT)	C	9		19	
8	PCDQT	Procedure Quantity - The definition of unit of service may vary by department.	P	3,0		50	
7	POSTD	Date Record Added	P	8,0	YYYYMMDD	45	
6	PRVNO	Provider Number(PRVNO) Service Provider	C	6		39	See Appendix(MGD Sasified Files - Hprovp).
24	PSLIN	Primary/Secondary Line - This field is used only for PCNs. It indicates whether or not a service is primary or secondary. Primary services, when performed by a primary care physician are covered under the primary care capitation, so the claim IS NOT paid. Secondary services are not covered under the captitation, so the claim is paid.	C	1		97	P=Primary, S=Secondary See Appendix(Primary Care Code Sheet).
1	PSVDT	Primary Date of Service - Service date associated with the claim.	P	8,0	YYYYMMDD	1	Example: 19910101
18	RCVDT	Receive Date for Claim - Date that the claim was received.	P	8,0	YYYYMMDD	79	

REFERRAL DETAIL DATA DICTIONARY

Field	Name	Description	Type	Width	Format	Start Pos	Range
3	SSVDT	Specific Date of Service - Date on which the specific procedure occurred.	P	8,0	YYYYMMDD	14	
26	UTLAM	Utilization Amount = ALWAM - Copay, for medical groups, this usually equals the net amount. For some medical groups, the net amount may equal 0, in which case the UTLAM should be used. It may not equal the net amount for PCNs.	P	7,2		112	
12	WITAM	Withhold Amount - Amount Withheld	P	7,2		64	

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